

THE BORDERS OF THE APPANAGE KINGDOM OF *TARHUNTAŠŠA* - A GEOGRAPHICAL AND ARCHAEOLOGICAL ASSESSMENT

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The discovery and publication of the inscribed rock monument at Hatip, south of Konya (Dinçol 1998; Dinçol 1999), has reopened the question as to the location of the 13th century appanage kingdom of Tarhuntašša believed to have been given possession of part of the Hittite Lower Land.

Our field reconnaissance³ in south-central Anatolia in the summer of 1998 was aimed at defining the borders of this kingdom as partly described in the treaty of Tuthaliya IV with Kurunta, his cousin, and which we consider to be the last of the Tarhuntašša treaties. In order to do so, it was decided to adopt a working hypothesis based on the assumptions that:

1. Whatever the reasons behind the decision of King Muwatalli (for a recent discussion, cf. Singer 1996: 191-193)) to transfer the Hittite central administration from Hattuša to Tarhuntašša, the latter would have to have been a settlement fit to become the kingdom's new capital. In other words, Tarhuntašša must have had the potential to expand and allow the construction of a palace compound spacious enough to accommodate the Hittite king and his large entourage of officials, aids and royal guards. Moreover, the location and topographic

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² Tel Aviv University, Institute of Archaeology. Before departing to the starting point of the reconnaissance trip, Ankara, the Istanbul team met their colleagues from Tel Aviv, who also were wishing to conduct an ethno-archaeological investigation in the same region of Anatolia. The both parties agreed to join their efforts to profit mutually from their knowledge and experience. This article is the outcome of a joint evaluation of the topographical, archaeological and epigraphical evidence concerning Tarhuntašša.

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characteristics of this new capital had to be suitable for constructing religious edifices for some of the major deities of the Hittite pantheon.

2. Capitals of kingdoms and city-states usually stand at or near the center of settlements connected by major landroutes. Therefore, it is logical to assume that Tarhuntašša too would have been located in an area where the density of second millennium settlements was high.

3. Since Muwatalli is believed to have died soon after the Egyptian War and his successor Urhi-Tešup (Muršili III) moved the Hittite capital back to Hattuša, from the town of Tarhuntašša, during the first quarter of the 13th century, the architectural development of the latter would have been interrupted at least until Kurunta was made king of Tarhuntašša in the second quarter of the 13th century B.C.

4. When Hattušili III conceded part or parts of the Hittite Lower Land, in particular the Hulaya River-Land, to Kurunta, it is highly improbable that he would have transferred major Mediterranean harbours such as Ura or given up control of the important land routes linking Hatti proper to the southern coast.

5. In defining the borders of the Land of Tarhuntašša the geographical names and descriptions of landmarks in the Bronze Tablet (Otten 1988) should be taken into consideration. Accordingly, the southwestern border of this kingdom was delimited by the Kaštaraya river (cl. Kestros) identified with the Aksu. The city of Parha (cl. Perge) outside the domain of Tarhuntašša or Hatti, provides a fixed location west of this river. As for the northeastern border of Tarhuntašša, the indices provided by the Bronze Tablet and the earlier Šunašura Treaty between Hatti and Kizzuwatna indicate that the "High Mountain" and the region in its vicinity is probably the Bolkar Mountains and the surrounding slope settlements. The northern territory of Tarhuntašša may have extended to areas south of the line marked by Hittite royal monuments which are generally dated to the second half of the 13th century. These are: Emirgazi (Tuthaliya IV.), Köylütolu (although the name of the king is not indicated it is assumed to belong to Tuthaliya IV), Yalburt (Tuthaliya IV), Eflatunpınar and Fasıllar. The last two are in all likelihood situated within the southwestern borders of Hatti. Although the Hatip monument commemorates Kurunta, its location does not necessarily prove that Ikuwaniya (Konya) was part of Tarhuntašša.

The starting point of our reconnaissance was the rock-carved monument of Kurunta at Hatip, south of Konya (Map). A short distance from this monument is a medium-sized mound which was inhabited in the Bronze Age. The hilly area above the Hatip monument revealed traces of stone walls and foundations and also pottery sherds which included some LBA examples. It is unlikely this was a large settlement, but rather the site of some buildings within an enclosure (Fig. 1). Whether or not these buildings were somehow related to the monument of Kurunta can only be clarified by large scale stratigraphic excavations. On the basis of surface observations, however, it seems to us that the location of Hatip so close to Konya and the rather poor nature of the architectural remains (contra Ünal 1997: 149 who could "determine neither potsherds nor remains of settlements of the Hittite era" there) make it rather unlikely that this could have been the royal city of Tarhuntašša (as suggested by Bahar *et al.* 1996). From Hatip we continued northwards in the direction of Kadınhanı to explore the

Hittite dam where the Köylütolu inscription was discovered in the late 19th century (Emre 1993: 8; Pl. 18). It has been pointed out that the inscription bears the name of Prince Šaušga-CERVUS-ti, a member of the Hittite royal family who was the protector of the city of *Titarme* and the governor of the related province (Emre 1993: 9; Masson 1980: 116-118) (Fig. 2).

The modern road from Konya towards Akşehir follows the north-northwesterly direction of a natural ancient road. Crossing the Bozdağ mountains, it passes through villages and districts such as Ertuğrul, Kadınhanı, Zaferiye, Ilgın, Argıthanı and Yeşilköy. The presence of kervansarays and hans such as Derbenthan, Kadınhanı and Argıthanı along this road are further proof of its importance since antiquity. It is particularly significant that the Hittite royal monuments and inscriptions such as those found at Yalburt or Köylütolu are located near or in the vicinity of this road which no doubt constituted a major link between Hatti and Arzawa. The Köylütolu dam (Fig. 3) constructed of piled-up earth is situated ca. 3-4 kms. as the crow flies east of a "Hellenistic" hill fort located near the village of Bulasan (today= Zaferiye) on the antique road between Philomelion (= Akşehir) - Tyriaion/Tyraion (= Ilgın) - Ikonion (=Konya) (Belke and Mersich 1990: 215-216). This so-called hill fort overlooks the poorly preserved remains of a lower fortified town and therefore it may have been the citadel of an urban settlement situated at a natural pass controlling the road. A perennial spring at the foot of this hill must have provided the inhabitants of this settlement with fresh water. Although it is labelled "Hellenistic" (see the legends of the photographs in Belke and Mersich 1990: figs 31-33), the actual date of this citadel is difficult to establish without excavations, since the existence of second millennium sherds among the large surface scatter of Iron Age and Classical pottery fragments within the citadel and outside its walls leaves little doubt that this site was inhabited throughout the entire Hittite period as well (Fig. 4). This is not surprising since the Hittites deemed it necessary to create a large water reservoir not very far away from this and probably other settlements by building the 25-30 m. high and 900 m. long Köylütolu dam (Emre 1993: 8-9, Pl. 19-21). Moreover, the construction technique of the limestone cyclopean citadel walls (without mortar) is strongly reminiscent of the monumental Hittite architecture which is best illustrated at Alacahöyük, Gavurkalesi, Eflatunpınar and Sirkeli. The Bulasan/Zaferiye hill fort is strongly reminiscent of the more northeasterly hill fort at Yaraşlı (Fig. 5). Yaraşlı is situated ca 100 km south of Ankara in the Haymana plateau on an eastern spur of the Karaca Dağ (1724m) south of a now dried out lake (Kurak Göl). At Yaraşlı too a perennial spring situated near the so-called hill fort, which in fact was a fortified town with a citadel surrounded by a high glacis, provided the inhabitants with fresh water (Mellaart 1983: Abb.1; Taf. 69, 3-5). Easily reached from Kulu, its location was of strategic importance since it allowed the town to control the countryside to its east, north and south, while the lower slopes of the Karaca Dağ hid it from view from the west and southwest. At Yaraşlı solid rubble walls, 4-5 m thick, follow the contours of the hill which gradually rises to the north and ends in a separately enclosed citadel mentioned above. According to Mellaart, the circuit wall enclosing an area of ca 500-200 m. is ca. 1400 m in length. It is fitted with a monumental gate and perhaps provided with a postern (1983: 345, Taf. 69, 2). The walls of the citadel are not well preserved except at some places where the

inner section stands several meters high (Mellaart 1983: Taf. 69, 7). The few fragments of a wheelmade buff ware with a red burnished slip found at Yaraşlı (Mellaart 1983: Abb. 2) are similar in profile and description to those found at the fortified site near Bulasan/Zaferiye (Fig. 6). Since these sherds at Yaraşlı were found within the stone walls and no Phrygian pottery was found in the vicinity of the circuit wall convinced Mellaart that the fortified town was built in the LBA, probably by the Hittites. The strategic location of Yaraşlı, of the Kızılırmak and north of Tuz Gölü would have allowed the Hittites to defend the western reaches of Hatti. As Mellaart pointed out, the site guards the gap between the hilly Ankara-Haymana district and the northern tip of the Tuz Gölü – a weak link in the chain of hills that form the outer boundary along the Kızılırmak (1983: 346). Yaraşlı which is tentatively identified by Mellaart with Şallapa, probably served as an advance Hittite base controlling the junction of an important north-southwestern road used by the Hittite army (1983: 347-348).

Driving westward from Bulasan/Zaferiye and then northward at the road junction at Ilgın through the village of Orhaniye, we reached the artificial Hittite water storage installation at Yalburt (Fig. 7). The purpose of the visit was to reassess the significance of this inscribed basin vis-a-vis its particular location at the base of a hill top settlement (Fig. 8). It is our impression that this water installation, like numerous other Hittite monuments in Anatolia, was not constructed in an uninhabited area nor in those outside the military or political control of Hatti. After Yalburt, we reached Sultan Dağları which still provides rich summer grazing for rural communities in the vicinity of Akşehir-Çay north of the mountains and Yalvaç-Şarkikaraağaç to their south. From Yalvaç we set off along the eastern shore of Beyşehir Gölü and reached Eflatunpınar where recent excavations are now revealing the full extent of this artificial Hittite pond. The numerous sculptures which surrounded this water storage facility leave no doubt that Eflatunpınar, fed by a perennial spring, was a sacred pool (Fig. 9). Excavations on a larger scale may answer the question whether or not a path connected this pond to some sort of religious edifice situated nearby. It is important to stress here that this pond had the capacity to provide a reliable drinking source for the inhabitants of the nearby settlement or settlements. From Eflatunpınar we continued south to Fasıllar where the Hittite sculpture was abandoned at its present location. A visit to the hill above the sculpture convinced us that this site with abundant extraction marks and strewn with chipped off stones was one of the stone quarries in this locality. It is almost certain that the unfinished Hittite sculpture was to be transported to another location, perhaps Eflatunpınar, and that for reasons unknown to us it was abandoned not far from the place where the block was extracted and roughly worked by local sculptors. From Fasıllar we continued towards Isparta where, south of the town, the route passing through Dereboğazı and the villages of Karacaören, Kargı, Köşeler allowed us a closer look at the Aksu river valley and its western tributary all the way to the Mediterranean coast east of Perge.

The second stage of our investigations started at Antalya. From here to Burdur we crossed the Çubuk and Çeltikçi passes, following the old route marked by kervansarays. The relief of the land east and west of the modern route convinced us that the mountain paths

would have been part of the land communication network in antiquity. South of the Çubuk pass there are two hans situated west of the present Antalya highway: Evdirhanı and Kırğız Hanı. North of the Çubuk Boğazı the road is lined by a number of kervansarays, the southernmost being Susuz Han 2 kms east of the present highway. Further north, before the road junction, is Incirhan ca 6 kms. west of the highway. The existence of Seljuk kervansarays indicates that this was the main artery connecting the Mediterranean coast with the hinterland. On the way back we drove towards Korkuteli along a secondary route (*yayla yolu*) which crossed the villages of Bayındır, Bereket Çamoluk, Ürkütlü and then reaches the modern road between Korkuteli and Kızılkaya. This was probably of secondary importance as demonstrated by the dearth of hans and ancient settlement. The route provides a north-south passage through the mountainous territory by following the topographic trend of the land which runs from the north in a south and west direction. Upon reaching Korkuteli the route continues east-southeast to Antalya via the Tahtalıbeli pass.

The third phase of our investigations covered the road between Manavgat-Seydişehir via Akseki. From Manavgat this route passes through the villages of Dikmen, Üründü and Aydınkent (= new name of İbradı). At the road junction at Aydınkent the road leads to Beyşehir via Derebucak, Gencek and Üstünler. Another road from Aydınkent leads to Akseki crossing the İrmasan pass. This road turns east and then north towards Seydişehir. From Seydişehir we reached Bozkır following the route along the northern and eastern shores of the Suğla Lake. After an investigation of two of the second millennium mounds mentioned by Mellaart (1958: 317) in this district (Büyüktepe, 2 km south of Gökhöyük village and Ortakaraören, situated on the northeastern shore of the lake) we reached the Konya-Karaman highway via Belören, Dinek crossing the Çarşamba river at Dineksaray. At Alibeyhöyük, situated at İçeri Çumra west of the Konya-Karaman highway, our observations about the pottery sherds and the dimensions of the mound confirmed the findings of Mellaart that this was an important second millennium settlement. A short distance from Alibeyhöyük the large mound of Sırçalı was visited (Fig. 10). At this site too, large quantities of second millennium sherds were retrieved on the slopes and terraces. Obviously, this was the site of a relatively large second millennium settlement which continued to be inhabited in the Iron Age and beyond. Some 20 km north of Çumra near the village of Abditolu we visited one of the largest mounds in the Konya Plain. Known as Domuzboğazlayan Höyük (Fig. 11), this site which consists of a high mound ca 30-35 meters above the plain level and an extensive terrace was first recorded by James Mellaart as an important second millennium settlement (1958: 316). Second and first millennium pottery was observed all over the site. It is very likely that settlements like Domuzboğazlayan or Alibeyhöyük, Sırçalı were district centers probably surrounded by smaller villages and hamlets. Having said this, it is not entirely clear from Mellaart's report (1958) whether the smaller mounds in the proximity of these large settlements were inhabited at the same time. For instance, the presence of at least two mounds a short distance from Domuzboğazlayan, one near the village of Dedemoğlu and the other near Küçükköy, raises the possibility of their being satellite settlements. However, since Mellaart (1958) does not mention the existence of second millennium pottery at these two sites, it is

difficult to arrive at a definite conclusion. From Çumra we took the road to Süleymanhacı crossing the flat plain of Konya. At Süleymanhacı we drove towards the Hotamış Lake passing the Acı Göl on our right, and continued to Kızıl Dağ. Then, after a visit to Kara Dağ, we went on to Ulukışla via Ereğli.

The Konya Basin is a vast and relatively fertile region. It is surrounded in the west by the Erenler mountains, in the south by the inner Taurus mountains and in the north by the Bozdağ and the Cihanbeyli and Obruk plateaus. The volcanic Kara Dağ and Karaca Dağ massifs separate this basin into three distinct plains, namely the Konya plain proper, the Karaman and the Ereğli plains. Of these three, the Konya plain is quite fertile. It owes its fertility to the Çarşamba Çayı and its numerous tributaries. This river, which emerges from the Beyşehir Lake, once used to fill the Suğla Lake before breaking through the mountains and discharging its waters onto the Konya Plain. Numerous dry irrigation channels observed by Mellaart (1958: 312), some of which are still visible, demonstrate that the agricultural potential of this plain was long exploited by means of irrigated cereal cultivation especially in Byzantine and Roman times and perhaps even earlier.

As already pointed out, our archaeological observations confirm Mellaart's survey reports (1958, 1961, 1963) that the Konya Basin was densely settled, particularly during most of the Early Bronze Age. Toward the later part of the third millennium B. C. the decrease in the number of settlements may suggest either a change in the settlement pattern or, more likely, a reorganization of settled communities due to socio-economic and local political factors. Mounds with second millennium occupation, although fewer in number than those with EBA I-II occupation, are much larger. These large second millennium agglomerations contributed considerably to the creation of high and extensive mounds having broad terraces. Their present profiles do not reflect the actual size of the settlements since it is known that the Konya Plain is covered with a thick layer of erosion soil. This is particularly well recorded in the town of Konya itself, where second and third century A.D. Roman sarcophagi have been recently found under a ca 5 m. deep deposit during the construction of the new building of the Department of Finance (information supplied by Kazım Mertek from the Konya Museum). Generally speaking the reorganization postulated in this region started in the second half of the third millennium B.C.E. In other words it is possible to assume, as already suggested by Mellaart (1958), that certain EBA III communities, drawn by successful late third millennium settlements, were responsible for establishing the large MBA I towns in the Konya plain. These large mounds with rich second millennium remains (mainly pottery), are found south of Konya, especially in the area of Çumra. Another large concentration is found south of Kara Dağ in the Karaman plain. In fact, north of Karaman numerous mounds can be seen stretching up to the Kara Dağ massif. East of Kara Dağ all the way to Karapınar the land is rather barren. Here, isolated rock outcrops and mountains such as Meke Dağ stud the Ereğli plain, where mounds are few (Fig. 12). However, in the enclosed valley north of Karapınar there are many large mounds with second millennium material which line along the road from Karapınar to

Emirgazi and beyond. North of Konya mounds are much fewer being found along the two natural roads, one the Konya-Akşehir road across Kadınhan and Ilgın, the other the Ankara-Konya road crossing the Cihanbeyli plateau. It is important to stress that large to medium-sized mounds bearing traces of second millennium occupation are also found southwest of Konya, especially near the shores of the Suğla Lake. Having visited the Konya Basin with its abundant natural niches, our impression is that the largest concentration of mounds with second millennium occupation is found in the area of Kara Dağ-Kızıl Dağ south of Hotamış Lake. The Kara Dağ massif with its 2271 m. peak is the most impressive landmark overlooking the Konya and Karaman plains. In Byzantine times numerous churches were constructed on the Kara Dağ. Among these the massive remains of the church on top of the mountain could be concealing much earlier religious edifices dating from the Iron and Late Bronze Ages. The rock inscription located almost next to this church may indeed suggest that Kara Dağ was considered an important cult place by the Hittites (Fig. 13). The existence of such an inscription could indicate that a Hittite cult building may have once stood at the present location of this church. The blocks of stones on one of which the longer hieroglyphic inscriptions is carved and the artificially smoothed surface of bedrock bearing the small cartouche form a kind of gallery, which further corroborates this view (Fig. 14). It is interesting to note that from the very spot where the inscription stands, one can clearly see the sharply profiled Kızıl Dağ and the other almost conical hills south of Hotamış Lake and north of the small bitter lake known as Acı Göl. (as already remarked by Hawkins 1995: 63 fnt 259).

The rocky (andesite and trachyte) hill-like mountain of Kızıl Dağ which could be considered a northern extension of Kara Dağ is situated on the southern edge of the ephemeral Hotamış Lake. In the summer this lake completely dries up. The slopes of Kızıl Dağ although rather steep nevertheless provide access to the summit on the southern side. A visit to the site gave us the strong impression that it was inhabited in the Late Bronze and Iron Ages. This was based not only on the abundance of pottery sherds but also on architectural remains and debris scattered almost all over the hill (Fig. 15). Such remains were particularly dense on the terrace-like slopes situated on the south-southwest of the hill and on its flattened summit. The area of the summit produced, as reported earlier (Bittel 1986), large stone blocks and remains of stone foundations pertaining to large edifices (Fig. 16). In fact, the area in question could easily have accommodated a palace compound. Since the scatter of sherds seemingly include both LBA II and EIA sherds, it is difficult to assign these architectural remains to one of these periods. The fact that political, administrative and religious centers suffered destruction at the beginning of the 12th century B.C. does not mean that some of them, especially in this region, could not have reorganized themselves as local polities. In other words, if a large royal edifice had existed in the 13th century (Fig.17), it may well have continued to exist, perhaps with some modifications, in the Early Iron Age. Moreover the existence of mounds with abundant second and first millennium occupation (Mellaart 1958: 318) along the shores of the Hotamış Lake and in the district of Ereşli, such as Türkmen-Karahöyük or Sincirli further indicate that this region continued to be inhabited without interruption, or at least not a significant one, after

the collapse of the Hittite state. Therefore Kızıl Dağ and its archaeological remains including the Kara Dağ compound and Burunkaya inscription (150 km northeast of Kızıl Dağ in the province of Aksaray) should be evaluated within the second millennium settlement network in this region. In addition to the inscribed monument of Hartapus and other inscriptions found nearby, Kızıl Dağ revealed a number of rock-carved tombs (Fig. 18, 19).

The fourth phase of our explorations took us to Adana via the Cilician Gates. A visit to Sirkeli located in the Ceyhan district of Adana provided a clear understanding of the significance of some of the rock monuments depicting the Hittite king. The ongoing excavations behind the Muwatalli relief at Sirkeli finally provided a good illustration of what seems to be a monumental royal tomb (see Hrouda *et al.* 1997: 115-116). However, even if Sirkeli was the spot where Muwatalli was buried, it does not seem likely, at least on the strength of the available archaeological evidence, that the LBA settlement at Sirkeli could have been his new Hittite capital Tarhuntašša. From Sirkeli we continued westwards towards Tarsus Gözlükule and Mersin Yumuktepe. Then from Mersin we took the coastal road to Silifke, passing Erdemli, Limonluk (Lamos), Elauissa Sebaste and Kızılkalesi (Korykos). The purpose of our investigations along this stretch of the Mediterranean coast was to investigate the likely locations of LBA ports used by the Hittites.

Unfortunately the archaeological records of the Middle and Late Bronze Age harbours along the Mediterranean littoral of Anatolia are buried beneath thick layers of silt deposited by rivers. As for written sources relating to harbours, Hittite documents, unlike some of the Iron Age Assyrian sources, later Greek sources – e.g. Homeros, Herodotus, Thucydides – (Casson 1973; Wachsmann 1998: 199-200, 320) or the Bible do not provide much detail concerning their location or layout. Most historical geographers presume that Bronze Age harbours were located near or beneath the port-cities of the Classical period. However, this approach is not without its shortcomings. By the time the Phoenician, Hellenistic or Roman ports were built, the LBA harbours were heavily silted. In exploring the likely locations of LBA harbours we took into consideration the fact that the silting of the Mediterranean river mouths since the EBA I has considerably changed the structure of the south Anatolian coastline. By the MBA this natural process, which filled in some of the small bays, created straight sandy beaches along almost the entire eastern Mediterranean basin (Raban 1983: 121-122). Therefore, in view of the scarcity of natural anchorages along the Mediterranean coast of Anatolia, LBA harbours for large boats would have been built at or near those river mouths penetrated by the sea. Such estuaries no doubt provided well-sheltered inland harbours connected to inland routes crossing river valleys and coastal plains, and supplied the deep-seagoing ships, whose existence in the LBA cannot be doubted, with sweet water and other vital commodities. In order to understand the importance of maritime transportation in southern Anatolia in the LBA, it is enough to realize that the transportation of goods on donkeys and mules along the difficult coastal route would have taken much longer to reach their destinations than shipment by sea. Furthermore, the load carried by land would have

required large numbers of pack animals, caravaneers and guards, making the transportation of goods by land more expensive than by a single deep-hauled or large double-decked boat. At Limonluk the ancient estuary at Lamos (Limonlu Çay) could have provided a small natural harbour. The presence of a Byzantine fort overlooking the mouth of this river is a further indication that Lamos retained its importance as a place of anchorage. Further west along the coast, there are two sites which provided additional anchorage. One of them is Elauissa Sebaste. The tip of the small peninsula at this site which juts out to the sea used to be an island. In classical times the river deposits carried by the Lamas Çay filled in the short distance between the sea shore and the small island thus creating two small bays. The second anchorage was the island of Kızkalesi opposite Korykos. A narrow and by now submerged isthmus may have linked this island to the shore in the Bronze Age. After the excessive silting of the Sebaste harbour, Korykos may have replaced it in importance perhaps as early as the 8th century B.C. During the 13th-14th centuries A.D. Genoa and Venice had established trading posts here. The fact that a Roman road connected the Korykos- Kızkalesi harbour with the hinterland strongly suggests that the latter was a major commercial outlet for inland communities settled in the mountains and mountain valleys. Indeed, double-decked boats capable of deep-sea sailing were fairly big, as demonstrated by the deep hauled, single-sail shipwreck from Kaş. Such large ships with an upper deck, referred to as Canaanite, are also depicted in Egyptian wall paintings (Raban 1983: 124). These sail boats were capable of carrying large loads of up to 500 tons. To shorten their journey they could, in theory, have navigated also at night although it is not certain that they did so. Most could have preferred to spend the nights in safe harbours, assuming there were enough of them along the eastern Mediterranean coasts. Therefore, depending on whether or not they kept port visits to a minimum by sailing at night as well, and the intensity and direction of winds, these large boats could have covered the distance between the northern and southern shores of the Mediterranean in a week or two. The lighter and highly manoeuvrable single-sail coastal boats occasionally depicted on seal impressions from Crete, Cyprus and the Syro-Palestinian coast were probably used for fishing, transportation and small-scale trade based on barter. They too would have needed harbours for night anchorage and for daily provisioning of fresh water and food (Raban 1983:123). It is not clear whether the more versatile multi-purpose rowing boats used in the Aegean by Cycladic, Minoan and Mycenaean sailors which recall the earlier Egyptian models were also used in southern Anatolia. The Bronze Age boats with their symmetrical double prows must also have been capable of sailing a short distance upriver and down again without having to turn around, especially when a harbour had to be moved slightly upriver due to a clogged estuary. It is safe to presume that Mediterranean harbours, including those along the southern Anatolian coast, would have contained installations such as a breakwater, repair docks and perhaps storage facilities for imported grain and other commodities. In fact, the written corroboration for the existence of installations in the eastern Mediterranean harbours come from a cuneiform tablet from Ugarit (RS 17.133 (Eilat 1990; Nougayrol 1956: 179) which deals with a royal ruling requiring the payment of damages caused to a ship. The tablet (RS 17.133) written and sealed by the Great Queen Puduhepa in

the name of Tuthaliya IV (cf. Darga 1976: 46; Bryce 1998: 316-317; for a different view, see Otten 1975: 26) clearly suggests the existence of quays in southern Anatolian LBA ports. In this letter the Hittite Queen informs the king of Ugarit, Ammistamru II on her royal ruling concerning the case of Šukku, and a “man of Ugarit” who accused him of deliberately damaging his boat. Šukku repelled this accusation by saying that the vessel was damaged because it collided with the quay. Since this accident required a royal ruling, it is likely that it involved a large cargo ship. Šukku, who may or may not have been the captain of the ship, was ordered to pay compensation. The fact, that the Hittite Queen judged the case and not the king of Carchemish, whose jurisdiction extended to Ugarit (Nougayrol 1956: 169-171; Bryce 1998: 348), could be explained either by the possibility that Šukku was a Hittite subject, or that the harbour where the accident took place was within Hittite territory. Already in the early second millennium B.C. some of the Mediterranean harbours became transformed into important port-cities. This development is particularly well recorded in the ancient ports of Israel, such as those which existed at Tell Ahziv and Tell Nami. Tell Ahziv is located on stretch of coast between the Khziv river on the north and Sha'al river in the south. The present extensive sandy beach marks the location of the deeply penetrating wide estuary. In the MBA the water from both rivers was diverted into a moat surrounding the settlement. This moat was obviously constructed not only to protect the settlement but also to prevent the clogging of the estuary by silt carried by winter flood waters. However, this measure was not effective and a lagoon formed behind the estuary. Connected with a channel carved into the rock surface of the beach, this lagoon provided protected anchorage for sea-going boats (Raban 1983: Pl. 8). The use of lagoons for anchorage was known not only on the coast of Israel but on other Mediterranean coasts, including islands. Indeed, the harbour at Malia, Crete, indicates that this was quite common in the Bronze Age (Raban 1983: 127-128). Tell Nami, situated 25 km south of Haifa near the river of Nahal Ma'arot, provides another, slightly different example of a second millennium Mediterranean harbour. On this section of the coast, the sea penetrated the highly eroded rocky beach east of the calcareous sandstone hills, creating small island-like rocky outcrops. In the Bronze Age, sand dunes blocked the course of Nahal Ma'arot. As a result, the accumulating sand formed dunes created a swampy-lagoon east of the beach. The water of the lagoon isolated a low calcareous sandstone hill turning it into an island. In the MBA II, this island separated from the beach to its west by a narrow channel, became the nucleus of a settlement. In order to preserve this natural channel as a safe anchorage, a wall was built along both sides of the channel. Moreover, to prevent the silting of the entrance from the sea into the lagoon, the lower bed of Nahal Ma'arot was diverted by an artificial channel constructed north of the settlement. This diversion was sufficient to prevent the sands brought by the sea waves from blocking the entrance into the lagoon (Raban 1983: 128). At the end of the second millennium, with the destruction of the central states which controlled the Mediterranean shores, the port-town of Nami like many other estuary harbours became completely silted up. The general socio-economic and political collapse in the region caused the neglect of these harbours, which were in need of constant repair and maintenance. A century later, however, the rising political power of the Assyrian Empire brought a revival of

economic prosperity to the Near East. The political vacuum along the eastern Mediterranean coast was short lived. The Phoenicians, taking advantage of the renewed maritime commerce, created a large mercantile fleet and constructed new ports on the Mediterranean coasts. The only estuary-ports available at this time were on the Aegean coast of Anatolia, the Bay of Corinth, the western coast of Greece, and the southern coasts of Sicily and Spain. Some of these harbours continued to be used during the Hellenistic and Roman periods. In the first half of the first millennium most of the artificial ports in the Mediterranean (e.g. Sicily, Tunisia and Cadiz) were built by the Phoenicians based on a skill which existed since the second millennium B.C. but developed further on the Levantine coast (e.g. Sidon, Tyre, Arwad, and Acre). Usually promontories or islands close to the shore were the preferred locations for some of the Iron Age harbours, where natural barriers such as mountains and the sea offered some protection against sudden attacks from the hinterland. On the Aegean coast of Anatolia such harbours had existed since the second millennium B.C. at Miletos, Iasos, Smyrna. Harbours were also constructed, in the earlier tradition, in places where rivers created a natural lagoon close to the sea. Where they did not exist, artificial lagoons were constructed using thick stone walls with entry either through a river or an artificial channel. These lagoon harbours were constructed at the new Phoenician settlements in Sicily, in the south of France, North Africa and on Cyprus (Salamis) (Raban 1987: 131-133).

The last stage of our investigations started at Silifke whence we first followed the Lower Göksü Valley, then travelled along the Gülnar road to reach the Meydancıkkale. From this point we drove back to the Göksu Valley via Çukurasma, Sütluçe, Şarлак villages, reaching Kilise Tepe, south of Mut. The Göksu Valley provides one of the main routes between the Mediterranean coast at Silifke and the south-central Anatolian plateau. Although the road between Silifke and Köseleli south of Mut runs close to this river valley, north of Mut the present highway to Alahan follows a more northerly direction, while the Göksu Valley continues northwest towards Kızılyaka south of Özyurt Mountain. Between Mut and Silifke there are a number of mounds along this valley some of which show traces of occupation since the Chalcolithic period. The mound of Kilise Tepe, currently excavated by N. Postgate (1997: 8-9; Baker et al. 1995: 142) was also settled in the second millennium B.C. In the LBA a Hittite settlement or stronghold existed at this site overlooking the Göksu Valley. Following the destruction of this Hittite settlement, which suffered a fate similar to that experienced by other contemporary settlements of Anatolia at the beginning of the 12th century B.C., the site continued to be inhabited in the EIA. In discussing LBA settlement in the Göksu Valley, Karaman Plain and Konya Plain, it is important to weigh the possibility that major towns and district centers of the Hittite Lower Land may have been buried under the massive remains of Medieval forts. The likely cases are the Mut castle, the Karamanoğulları castle on the mound of Karaman and the Alaeddin Tepe in the town center of Konya.

To what extent does the geography and second millenium settlement pattern in the Konya basin and its surroundings, described above, fit the data supplied by Hittite written

sources? There are two major political documents which could be considered relevant for the reconstruction of the borders of the appanage kingdom of Tarhuntašša, namely the vassal treaties of CTH 106 (the Ulmi-Tešup treaty; van den Hout 1995) and the Bronze Tablet (Otten 1988) concluded by the Hittite Great Kings, Hattušili III and Tuthaliya IV respectively (for controversial arguments about the assignment of the Ulmi-Tešup treaty either to Tuthaliya or to Hattušili, cf. van den Hout 1989 and Gurney 1993; for a summary of the discussions on the chronology of the Tarhuntašša-Treaties, see: Bryce 1998: 297 - 8). Of these two, the Bronze Tablet provides us with a complete and detailed list of geographical names, some of which designate the border towns and some being landmarks such as mountains and rivers delimiting the political frontiers of this kingdom. These must certainly be listed in a logical order, starting from a fixed point and describing the line of demarcation clearly enough to be understood by both sides of the treaty, who as natives of the country were familiar with the geographical details of their lands. Therefore, the Bronze Tablet should be considered a trustworthy document. If this were not the case and the geographical names enumerated do not follow a particular direction but are given arbitrarily, it would be impossible to base even the simplest reconstruction of the historical geography. As already mentioned above in the introductory remarks, the few fixed points such as Parha, Kaštaraya in the west and "High Mountain" and Šaliya in the east give the impression that the names follow a clockwise direction starting from the north at Pedašša which belongs to Hatti and which roughly corresponds to the region lying northeast of the Beyşehir Lake (see Starke 1997: 450), partly overlapping with the Cl. Pisidia (cf. Forlanini 1988: 153 and fn 115). From here the demarcation line between the Hulaya River-Land and Hatti follows eight mountains or mountain ranges. The topographical situation from southeast of Akşehir eastwards to the Bolkar Mountains (= "High Mountain") and the adjacent Šaliya Region, which was the contact zone of Hatti and Kizzuwatna according to the Šunašura treaty, is marked by the northern extension of the Central Taurus ranges and by some inactive volcanos such as, from west to east, the southern flanks of Sultan Dağları, Erenler Dağı, Kayalı Dağ, Çil or Çal Dağı, Osmançık Dağı, Mek(k)e Dağı and Karaca Dağ. These mountains, clearly visible landmarks on the otherwise flat terrain of the Konya Plain, form a curving line between Höyük-Çumra-Ereğli-Pozantı. South of this line is the territory of the land of Tarhuntašša. This border cannot be described more precisely unless new documents are found relating to the historical geography of this region. However the interpretation of some of the *points de repaire* could supply additional support for the above reconstruction. Since the identification of Kašt(a)raya with Kestros=Aksu, the western border of Tarhuntašša is firmly delineated. It follows a straight north - south line from the Eğridir Lake to the Mediterranean. The city Parha=cl. Perge lies at the southern end of this frontier on the western bank of the river, in the land of Lukka. The next name mentioned after Parha is the region Walma, which is identified with the cl. Holmoi near Çay, south of Eber Lake (Hawkins 1995: 51 fn 178 and Starke 1997: 450; for the discussions on its localization cf. Gurney 1997: 132 ff; according to Starke it extends westwards to Sandıklı and Dinar where the river Menderes = cl. Maiandros has its springs. On the other hand, he believes that it is directly neighbouring the river Kašt(a)raya and that Pedašša lies north of it around Ilgın). The mountain range of

Sultan Dağları forms a barrier which could be considered a natural frontier between Pedašša (Hawkins 1995: fn 177; Starke 1997: 450) in the north with its territory extending to the east and Walma in the south with its territory extending to the west. The southeastern end of the same mountains could also mark the border between Tarhuntašša and Pedašša if the location of the latter is correct and thus allows the identification of Mt. Hauwa with Erenler Dağı. A second landmark relating to Pedašša is the ^DKASKAL.KUR of Arimmatta, which marks the border during the reign of Hattušili, who for an unknown reason took away a part of the adjacent territories of Nahhanta and Hattutašša which probably were north of Arimmatta. Tuthaliya subsequently returned them to Tarhuntašša. If ^DKASKAL.KUR does indeed represent a "spring pool" (van den Hout 1995: 55), this could probably be identified with the sacred basin of the Eflatunpınar Monument. There is a medium-sized mound next to the monument which could be identified with Arimmatta. The two settlements returned to Tarhuntašša by Tuthaliya IV are thus to be sought north of Eflatunpınar around Höyük. It seems that Hattušili wanted to add the eastern shores of the Beyşehir Lake again to his royal territory. The return of these settlements means to abandon also the Eflatunpınar Monument, which may be the reason why it had been given up without completion and without a royal inscription.

Another landmark on the frontier between Hatti and Tarhuntašša is the mountain Arlanta from where a river springs out, the waters of which is divided by both lands. The position of Çal/Çil Dağı corresponds to this description: the river which at the present is used for the irrigation of the region by means of a small dam, May Barajı, originates from that mountain and follows a southeastern course, could demarcate the border; northern shore belonging to Hatti and the southern one remaining in Tarhuntašša. The mountain Šarlaimmi is generally identified with the Bolkar Dağ (Laroche 1959: 293; Gonnet 1968: 135 f; Otten 1988: 35 f; Hawkins 1995: Fn 171). This equation has to be altered, if the phrase "pargawaz HUR.SAG-az" is interpreted not as "from the height of the mountain", but, as "from the High Mountain" (for the discussion cf. Otten 1988: 35 and compare Goetze 1940: 52). The highest mountain of the region, the Bolkar with its summit at Aydos (3430 m), deserves to be called so, if we are to understand the above cited phrase literally. The mountain Šarlaimmi could thus be identified with the inactive volcano of Karaca Dağ (2000 m), which is also situated in the same region (=Hubešna) and has a topographical mark, i. e. a small volcanic lake (to be precise: a "maar" in geological terminology) on its southwestern slopes on Meke Dağ, which could possibly correspond to ^DKASKAL.KUR *watar hinnaruwaš*, since it seems to denote a special kind of water basin (Otten 1988: 36; for an extensive bibliography on this term cf. van den Hout 1995: 57). The localization of the city Šaliya has already been elaborated because of its occurrence in the Šunašura treaty (Goetze 1940: 51 f.). Its approximate location in the vicinity of the Bolkar Dağ (= east of Hulaya-River land) seems to be assured also by the recent studies (van den Hout 1995: 57). From this point on the names listed in the Bronze Tablet should define the eastern frontier of Tarhuntašša. But, because of the existence of the word *arahzenaza* preceding the names enlisted after Šaliya in the frontier description in the

Ulmi-Tešup treaty (I, 29) and since the document CTH 82, presumably on a Lukkan invasion, assigned to Hattušili III, mentions some of the same place names occurring in the Ulmi-Tešup treaty and the Bronze Tablet, some scholars suggest that there is a "jump" from east to west in the description of the frontier (van den Hout 1995: 57 with earlier bibliography; Hawkins 1995: fnt 178). This is based on the assumption that two of the place names, Walwara and Šanhatta occur together with Kuwalapašša, which is generally identified with Colbassa (del Monte - Tischler: 1978: 231-2), in the above mentioned text of Hattusilis III. Even if this equation is true, the relation of the two settlements with Colbasa is not clear, unless the list of names in this document is considered to be an itinerary. In fact, this text contains a battle report, which enlists names of cities attacked by the enemy (Gurney 1997: 137), which should not necessarily follow a geographical order. Therefore there must not necessarily be a jump from east to west in the frontier description, since the localization of Walwara and Šanhata are by no means certain. The usage of *arahzenaza*, which also affects the interpretation of the description of the border, could mean, as already suggested by Garstang and Gurney (1959: 72 f), "*outside the High Mountain*". This interpretation fits very well to the geographical circumstances, since the frontier of the region which is called the Lower Land, Hulaya Land or Tarhuntašša has to run *along* the northern slopes of the Bolkar mountain range, which builds a natural barrier between the Konya plain and the Mediterranean littoral. This means in political terms, that a power controlling the southern side of this mountain, would easily take the Cilician Gates and the whole of the Cilicia Campestris under its hegemony. Such an advantageous position of an appanage kingdom would have never been tolerated by the central power. Therefore the names of the settlements enlisted from Šaliya until "the place (in/at) the sea" should be sought along the northern side of the mountains of Bolkar and Göktepe. The phrase *arunaz pedaz*, meaning literally "from the place of the sea" (Otten 1988: 36), should designate a distinct landmark on the sea shore. A "place of the sea" could either be an island or a peninsula. These have a special noun (i. e. *kuršawar*) in Luwian (cf. Starke 1997: fnt 23 with earlier bibliography) and in Nesite (HDW: 42). But, a harbour could also have been defined "as a place in/at the sea". Along the Mediterranean coast from Mersin to Silifke, two harbours reveal a characteristic appearance: at Elauissa Sebaste on the western shore of the river Lamos had originally an offshore island which had been connected to the coast by an isthmus due to the silting of the river. At a short distance westward lies Corycus, where there is another island about 200 m. away from the coast. At Lamos the coastal strip becomes narrower and the mountain ranges get relatively nearer to the sea, but the territory beyond them cannot be described with reference to the tiny isles off the shore as "the place in/at the sea". The river of Lamos is regarded as the boundary between Cilicia Campestris and Cilicia Tracheia in antiquity. From north of Sebaste the frontier should run again in a southwesterly direction from the northern foothills of the Pusatlı Dağ to cross the river Göksu near Şarлак and to arrive at the sea via Gülnar at the cl. Celenderis, which we assume to be identical with Šaranduwa of the Hittite texts (already pointed out by Gurney 1997: fnt 21). Corycus with its harbour and its hinterland up to the mountains seems to be the best candidate for the identification with the Hittite seaport of Ura (for an extensive discussion of the possible

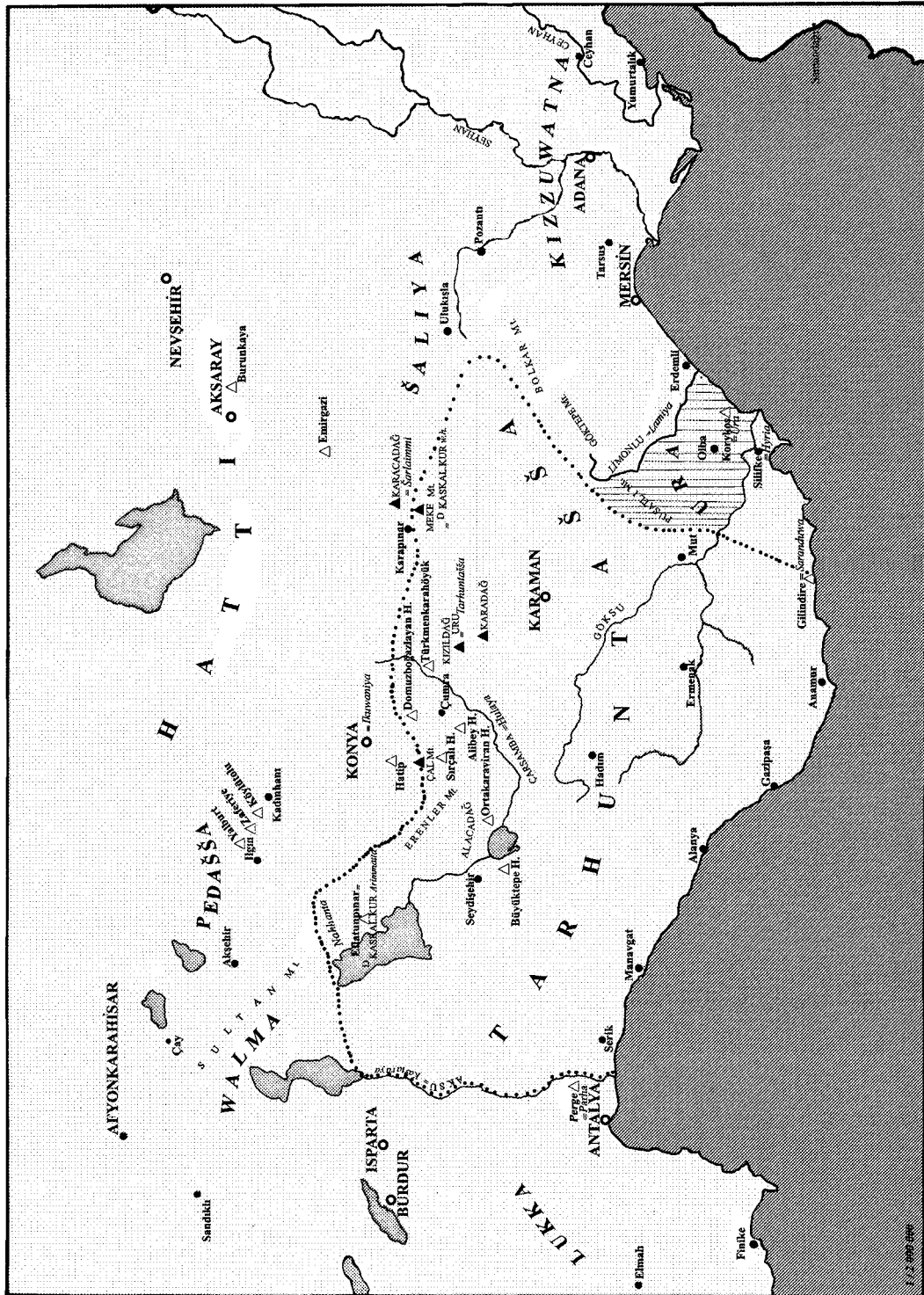
localization of Ura at Olba, cf Beal 1992; see also Lemaire 1993 who places Ura at Silifke). The actual city of Ura might not necessarily be there, but it could have been founded up in the hills, maybe because of piracy, as it became usual in the later times. The classical city of Olba at modern Ura, which is connected by an excellently built (Roman) road to the harbour (Fig.20), was identified with Ura of the cuneiform texts by many scholars (del Monte and Tischler 1978:457-458; cf. Beal 1992). The distance of approximately 25 km between Olba and Corycus seems to be the major argument against this equation. However, two points should be taken into consideration: settlements may change their locations preserving their names in the course of history; the Hittite Ura should not necessarily be restricted only to the seaport but, could denote a region including the harbour town with its dependencies, as can be deduced from expressions in KUB XXVI 29+ mentioning "the elders of the towns of Ura" (Tischler - del Monte 1978: 458). In fact, a recent study shows, that Olba was not a *polis* only, but a self-contained *territorium* with natural boundaries between the valleys of the rivers Lamas and Calycadnos in the east and west, Taurus range in the north and the Mediterranean coast in the south (Durugönül 1995). This region of Olba, with its administrative centre at Seleukia during the seleucid period, seems to have preserved the ancient name Ura since it had also been called *Hyria/Huria* according to Stephanus Byzantius (Steph. Byz. 560 and 651-2). It may not be due to a confusion of the Byzantine author to call several places (in the same area) like Holmoi, Olba and Seleukia *Hyria*. If we should assume, that the Hittite Ura, as well as later Olba, denoted not only a settlement at the sea coast, but the whole region, different parts of which could have kept the same ancient name in later times (for arguments against this view, cf Beal 1992). Because of the importance of the harbour of Ura, its whole hinterland, which later corresponded to the *territorium* of Olba, was known by the same name, where it survived as *Hyria* in different towns of the area. The seaport of this region should be searched at Corycus, which had an adequate anchorage and good possibilities of communication mainly by means of natural roads to other towns within the region (see Aydınöğlu 1998). If our localization is correct, it could also explain the absence of Ura in the Tarhuntašša treaties: the border line runs far away from the harbour and leaves the region beyond the mountain ranges in the royal domain of the Hittite Great King. Otherwise regulations about the common usage of the port of Ura should be expected to take place among the paragraphs of the treaty. Such an important harbour could not have been neglected in an agreement, where clauses even about the sharing of the waters of a river are not forgotten (Otten 1988: 13). Although the harbour of Ura is not directly mentioned in the treaties, an allusion to it may be found in the Bronze Tablet in the above cited expression *arunaz pedaz* "from the place in/at the sea", which could denote the seaport of Ura and its hinterland which expands up to the mountain ranges, from the northern slopes of which the border is drawn. The reason why the scribe had refrained from writing down the name of the city might be explained by the wish to avoid the misunderstanding, that the border runs close to the seashore. These suggestions relating *arunaz pedaz* are of tentative nature and should not affect much the frontier of Tarhuntašša, if the equations of Ura=Corycus in the Olban territory and Šaranduwa = Celenderis are correct.

The capital of the appanage kingdom of Tarhuntašša should be sought in a densely settled area easily connected to other parts of the central plateau and the Mediterranean region by a network of roads. In the relatively large geographical region ascribed to Tarhuntašša, the archaeological remains recorded on the volcanic rock outcrop of Kızıl Dağ north of Karaman, including the rock cut chamber tombs, makes this site the best candidate to be the political and religious center of this semi-independent polity, as has correctly been suggested earlier by Alp (1995: 1-11). The topographical features of the site and its immediate surroundings would have provided Muwatalli with a natural setting not fundamentally different from that which existed at the much larger Hittite Capital at Hattuša. The carved figure of an enthroned king and the hieroglyphic inscription of King Hartapus accompanying it emphasizes the royal character of this settlement. King Hartapus claims to have the "Great King" Muršili as his father according to the Kızıl Dağ – Kara Dağ group of hieroglyphic inscriptions (cf Hawkins 1995: 103-107), who might have been identical with Muršili III = Urhi-Tešup (for the discussion and former bibliography, see Hawkins 1992: 259-275; Alp 1995: 9 believes that this theory cannot be reconciled with the historical facts). Thus, the reign of Hartapus – a son Urhi-Tešup might have begotten in his exile years – is to be dated to the early 12th century B.C., following the collapse of the Hittite Empire. Because of the sparseness of evidence relating to this phase, we do not know whether he was a direct successor of Kurunta or not. If there were no other king between these two on the throne of Tarhuntašša, he must have been the one whom Šuppiluliuma II defeated according to the *Südburg* Inscription (Hawkins 1995: 62). His employment of the royal title of the Hittite Great Kings of Hattuša is against this probability. However it is more likely that Kurunta had seized power in Hattuša after the death of Tuthaliya IV reigned over the whole Empire -of course including Tarhuntašša, which lost its vassal status and had been annexed to Hatti after Kurunta became Great King himself – long enough to leave at least three different seals (and a dozen seal impressions) in the royal archives and to build the rock monument at Hatip near Konya (Dinçol 1998) and died (by a natural death or by the result of a *coup d'état*) childless and without a nominated and accepted heir at an improved age, whereafter Arnuwanda III. became the Great King. What the status of Tarhuntašša during his apparently short reign was, is obscure, but, we may assume that it might have regained its autonomy, which caused the military campaign lead by Šuppiluliuma II. An alternative assumption could be, that Kurunta had a son Muršili, who ascended to the throne during the reign of Arnuwanda III. when Tarhuntašša revolted against Hatti. If Hartapus is the descendant of Urhi-Tešup, he might have claimed his juridical right to accession to the Hittite throne, which was usurped by Hattušili III. and his descendants, using the lack of a central power after the end of the Hittite Empire. The existence of the royal aedícula in the Hartapus Inscriptions indicates that it was vacant at the time of his enthronement, since the Hittite Empire had already collapsed (Hawkins 1995: 63 fnt 261).

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Map: The location of sites and roads mentioned in the article.



Fig. 1. Hatip Monument.



Fig. 2. Traces of stone wall foundations on the hill above the Hatip Monument. The fact that some LBA sherds are scattered on the surface may suggest that some kind of an edifice or edifices contemporary with the monument existed at this site.



Fig. 3. The Hittite dam at Köylütolu (Emre 1993).



Fig. 4. The remains of the stone fortification wall at Zaferiye situated a short distance from the Köylütolu dam. Sections of this wall bear a strong resemblance to the construction of some of the well-known Hittite fortification walls such as at Yaraşlı (Fig. 7), Gavurkalesi (Fig. 8), Eflatunpınar (Fig. 12), Alacahöyük and Sirkeli. The fact that the scatter of sherds at this site include LBA pottery may further corroborate the assumption that at this time it may have been a fortified Hittite town.



Fig. 5. The LBA fortification walls at Yaraşlı (Mellaart 1983).



Fig. 6. A segment of the fortification wall at Gavurkalesi.



Fig. 7. General view of the water basin at Yalburt.



Fig. 8. Yalburt. The settlement on top of hill above the basin.



Fig. 9. Eflatunpınar (= ^UKASKAL.KUR of *Arimmatta?*). The Monument.



Fig. 10. Sırcalı Höyük.



Fig. 11. Domuzboğazlıyan Höyük.



Fig. 12. Volcanic lake on Meke dağ (= ^UKASKAL.KUR watar hinnaruwaş).



Fig. 13. Kara Dağ. Cartouche of Hartapu.



Fig. 14. Kara Dağ. A view of the gallery of inscriptions.



Fig. 15. Kızıl Dağ. The southern slope where the scatter of pottery sherds, including those dated to the LBA II are particularly abundant.



Fig. 16. Kızıl Dağ. Hartapu monument.

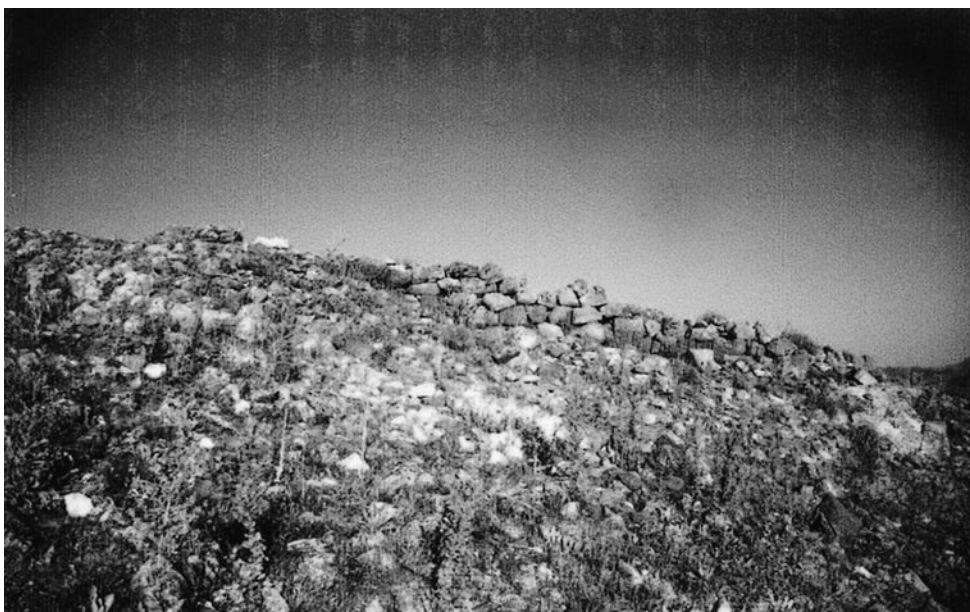


Fig. 17. Kızıl Dağ. The remains of a stone terrace (?) wall at the top of the hill.

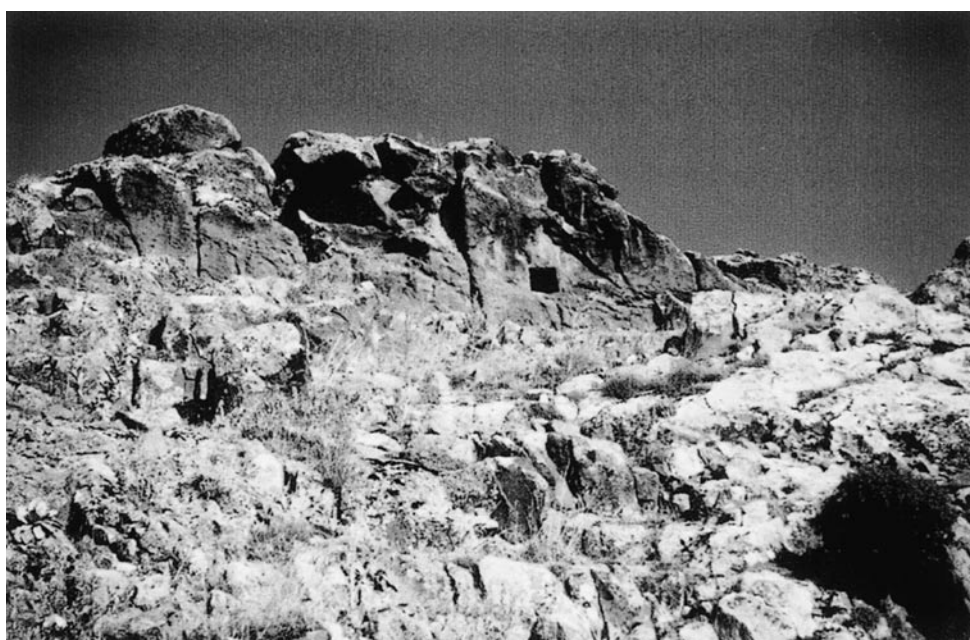


Fig. 18. Kızıl Dağ. Rock-carved tomb.



Fig. 19. Kızıl Dağ. Carved steps.



Fig. 20. Roman road linking Olba to the coast at Korykos.

TELL KURDU EXCAVATIONS 1999

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INTRODUCTION

K. Aslihan Yener

In the summer of 1999 the Oriental Institute's Amuq Valley Regional Projects (AVRP) conducted a second season of excavations at Tell Kurdu, one of the major prehistoric settlements in the Amuq plain in Hatay, located in southern most Turkey (Fig. 1). The earlier exploratory test pit in 1996 and the 1998 results are reported elsewhere (Yener et al. in press, Yener in press). The first excavations at Kurdu were part of the explorations undertaken in 1938 by the Oriental Institute "Syro-Hittite" Project (1932-1938) which completed the missing segments of a prehistoric sequence by exposing Phases C-E in four trenches. Consequently, Amuq Phases A-E (later 7th to mid-5th millennia BC) rest on ceramics and stratigraphy from tells Judaidah, Dhahab and Kurdu, with the latter site alone sustaining the Halaf-Ubaid portion of the sequence (Braidwood and Braidwood 1960). Robert Braidwood also completed a regional survey, recording 178 prehistoric and historic period sites (Braidwood 1937), and the team made soundings at half a dozen sites to secure a ceramic chronology. The resulting Amuq sequence has remained a standard chronological framework for Near Eastern prehistory since its full publication.

In 1995 AVRP began work in the Amuq plain marking a return of the Oriental Institute to the region after a long hiatus. The project focused on the regional scale during the first few years, conducting both geoarchaeological work and settlement survey. These efforts have greatly clarified the environmental and geomorphological history of the Amuq plain by documenting sedimentation across the plain, indicating shifts in the course of the Afrin and Orontes rivers through the plain, and recording several episodes of lake formation (Wilkinson in Yener et al. 1996, in press; Wilkinson 1997, 1999), while the settlement survey has added 54 sites to the regional database. In addition to this regional work, the project team undertook salvage work at Tell Judaidah mapped Tells Dhahab and Imar and placed a sounding at Tell Kurdu (Yener et al. 1996, Yener et al. in press).

In 1999 several survey teams approached period specific topics in the Amuq valley as well as incorporated adjacent regions to the overall project. Jan Verstraete focused attention on the Aegean-related episodes in the survey while Tim Harrison conducted a three week survey of third millennium sites in the Amuq valley in 1998 and targetted the question of the

Red-Black Burnish Ware traditions in 1999. Reports of this work in progress will appear in another article (Harrison; Verstraete and Wilkinson in Yener et al. in press). During the course of the 1999 investigations, a basalt fragment containing a Luwian hieroglyphic inscription from the Iron Age was discovered at the garden of a farm house on Tayinat al-Sughir. The fragment was said to come from Tell Tayinat and represents the first inscription found in the newly activated Amuq Valley Regional Projects. Earlier excavations yielded several fragments of similar epigraphic materials from Tayinat (Gelb 1939; Haines 1971).

A three day reconnaissance of the mining regions in the Amanus Mountains was conducted by the author in conjunction with the Turkish MTA (the Mineral and Research Institute General Directorate) and Boğaziçi University. Veins of arsenopyrites in conjunction with chalcopyrite were clearly evident in one of the many gallery entrances which presented intriguing implications for the appearance and production of the very early arsenical bronzes found at previous excavations at Amuq sites. In the course of the highland survey a lengthy inscription which was carved on a large boulder with the word Antioch in Greek was discovered at 2000 m. altitude on a seldom traveled path through the mountains to the Mediterranean Sea. These finds present glimpses into the still as-yet undiscovered inscriptions and other epigraphic materials that wait to be fully investigated in the foothills and steeper slopes of the Amanus.

The AVRPP survey was further expanded through the gorges of the Orontes [Asi] river furnishing urgently needed information about the coastal delta and shoreline. Much of the wealth of the area is rich agricultural land which is heavily terraced and is enhanced by the connectivity of river trade between the Amuq valley and the Mediterranean Sea. The Orontes Delta Survey, directed by Hatice Pamir of the Mustafa Kemal University in Antakya unearthed 30 new sites at the mouth of the Orontes [Asi] River near the Mediterranean coastal town of Samandag, which will be reported elsewhere. Although the majority of the sites were Classical, Byzantine and Islamic, the much sought after LBA Sabuniye, which was first excavated by Sir Leonard Woolley, was rediscovered, measured and its surface was intensively surveyed. The port site of al-Mina (now Liman Mahallesi), which is located on the northern bank of the Orontes, today lies 1.5 kilometers from the Mediterranean Sea and was given close scrutiny by GPS mapping and intensive surface survey. A safe and sheltered anchorage for ships made the site of al-Mina an advantageous location for a harbor (Woolley 1937) especially in the Iron Age. The elusive Sabuniye was described as being "three miles" inland from al-Mina and appears to be connected closely with it (Woolley 1938: 8-9, 1953). Another LBA site, Virsa Tepe, was located atop a hill just opposite Sabuniye and may be strategically flanking the river gorge entrance to Antakya and the Amuq. Aegean related wares, specifically stirrup jars found in 1999 at Sabuniye will enable the Orontes Delta area to be placed within a broader maritime context. Given the alluvial infilling of many rivers in Turkey as exemplified by the region around Çanakkale and Troy, it is entirely possible that Sabuniye may have been the actual port during the Late Bronze Age and not as suggested, Al Mina. Reconstructing the shoreline of the delta area by coring in future seasons will provide much needed understanding of the traffic of commodities through the Orontes river route eastward. This would clarify the appearance of Aegean-related materials concentrated on the larger sites

in the Amuq such as Tells Atchana/Alalakh, Chatal Hoyuk, Tayinat and Judaidah. The following sections present detailed research at the excavations undertaken at Tell Kurdu.

INVESTIGATIONS AT TELL KURDU

Chris Edens (University of Pennsylvania) and Aslihan Yener (University of Chicago)

Tell Kurdu is a large low bilobate mound covering about 15 ha sets on the deltaic fan of the Afrin, about 3 km east of the historic Lake of Antioch (see Fig. 1 for location); before the lake was drained, marshes extended along the northern edge of the site. The site encompasses two distinct mounds, a saddle running between the two. The higher south mound presents moderately steep slopes to the south and east, but elsewhere the mound presents very gentle topography. During the 1930s the smaller south mound rose nearly 9 m above plain level, while the larger mound in the north stood only 4 m high. Motivated by recent development of cash crops like cotton, local landowners have bulldozed and flattened areas around the edges of Tell Kurdu (readily evident in the current rectangular appearance of the south mound, see Fig. 2), and have pushed earth from the top of the south mound into the once deeper saddle to the northwest. Careful topographic examination of the site and its neighborhood indicates that the south mound has lost at least 1.7 m and probably closer to 2.3 m from its top.

During Amuq C times Tell Kurdu was the major settlement of the plain, and remained one of the main settlements into the Amuq E period. Settlement survey has recorded 30 sites that definitely or probably fall in the Amuq A-E range.¹ While most of these settlements are small, on the order of 1 ha, several places in the center of the plain are considerably larger. Judging by intra-site surface distribution of diagnostics and Braidwood's excavation results, the settlement at Tell Kurdu covered around 15 ha during the later 6th millennium (Amuq C) when it was by far the largest settlement of the plain. By the early 5th millennium (Amuq E), Tell Kurdu had contracted to perhaps 5-7 ha on the south mound (but see the reassessment below); Tell 'Imar, 3 km to the south, was also occupied at this time and may have been a substantial settlement. The two-tiered primate pattern suggests a degree of hierarchy and complexity during Amuq C-E times.

Braidwood placed four trenches in Tell Kurdu, three on the south mound and one on the north, during a hurried two week campaign in 1938. Digging in arbitrary levels, he carried Trench I, a 4 x 20 m exposure on the south mound, down 11.5 m to water table (not virgin soil) nearly three meters below plain level. The pottery from this trench forms the backbone of the Amuq C-E sequence, with the upper five meters of the trench representing Amuq E, the next 4.5 m Amuq D, and the lowest two meters Amuq C. The other two trenches on the south

¹ Fine-grained chronological analysis of surface collections from these sites has not yet been undertaken, in part because of the need of closer stratigraphic control of both the undecorated pottery and the many painted styles that characterize the Amuq A-E sequence. As a result, only some of the sites can now be assigned specific dates based on the better documented styles of painted decoration.

mound remained within Amuq E levels. On the north mound, Trench IV reached Amuq C levels within half a meter of the surface. Braidwood suggested that proximity of Amuq C material to the surface of the north mound, and the thick deposits of Amuq D-E on the south mound, implies earlier mounding in the north and later formation of the south mound. The same observations also suggest that the Amuq C occupation spread across the entire site area while the Amuq E settlement lay only on the south mound.

AVRP chose Tell Kurdu as the first step of a long-term program of excavations at several different mounds. The larger program seeks to examine intra-regional and interregional dynamics through time in the Amuq plain. Tell Kurdu represents the Amuq C-E (and possibly earlier) portion of the regional sequence, a time during which settlement and probably a degree of social hierarchy emerged. The changing pottery styles point to interactions with the Halaf and 'Ubaid worlds of northern Mesopotamia. As a regional center, Kurdu would have played a pivotal role in interregional interactions. These interactions are likely to have involved, among other factors, flows of raw materials from the neighboring Amanus Mountains (e.g. serpentine, other stones, timber, and potentially copper and other metals), and potentially craft production both for intra-regional consumption and for extra-regional export. The Kurdu excavations seek to investigate this set of issues in a community at the threshold of social complexity. The excavations also have the secondary but still vital goal of firming up and expanding Braidwood's Amuq ceramic sequence, both as tool for analyzing surface collections for the regional survey and as a contribution to the chronological framework of southeastern Anatolia and western Syria.²

The work began in 1996 with a sounding in the south mound, placed on its eastern slope at the edge of the recent bulldozer cut (Fig. 2). The sounding revealed a mass of pisé architectural collapse and a dense mass of burnt grain, above a level of more intact but incompletely exposed architecture. The associated pottery was Amuq E in character, and two radiocarbon dates place the upper phase around 4800 cal BC (see Yener et al. in press for details). In 1998 excavation opened larger areas on both south and north mounds (Fig. 2). A 225 sq m exposure on the summit of the south mound (Tr 1/6/9) documented a wide platform and large architectural complex with grill rooms, open spaces, and ovens belonging to an early phase of Amuq E. A 100 sq m exposure on the east slope adjacent to the 1996 sounding (Tr 2) uncovered two blocks of small rooms and associated open space lying above a round building, all dated to Amuq E. A 100 sq m exposure on the east side of the north mound (Tr 4) found three Amuq E burials placed into a sequence of trash deposits, burnt architectural debris and concentrations of burnt grain, and more intact architecture of Amuq D date. In the central section of the north mound a 25 sq m trench (Tr 7) exposed Amuq C residential architecture and associated features. Elsewhere on the north mound exploratory trenches (Tr 5 and 10) documented additional architecture of undetermined date. A pilot magnetometry

² Considering the nature of the 1938 excavations, Braidwood's pottery descriptions and chronology has so far proven to be extremely robust. But very small sample sizes, limited exposures, and coarse stratigraphic resolution offer considerable scope for adjustment and refinement of the basic scheme, especially for Amuq pre-C, C and D

survey yielded mixed results, detecting substantial, possibly tripartite architecture on the north mound but yielding only ambiguous results elsewhere. The 1998 results corroborated Braidwood's observations about site formation, and also confirmed that different periods are readily accessible on different parts of the mound.

The 1999 season³ of the Tell Kurdu excavations had four basic objectives: (1) to further investigate an area of Amuq E architecture on the eastern slope of the south mound; (2) to begin a step trench down the east face of the south mound in order to create a more detailed ceramic chronology for the Amuq C-E periods; (3) to investigate architecture detected on the south mound during the 1998 magnetometry survey; and (4) to investigate the extent of disturbance and depth below modern surface of intact deposits on the northwest slope of the south mound. The second season of full-scale excavations at Tell Kurdu opened three major areas, and another three smaller portions of the site (Fig. 2). Each trench was excavated by a trench supervisor and assistant, and a team of 4-6 workmen from neighboring villages. Excavators used pick and shovel in poor contexts, and trowel and small pick in good contexts; sediments from secure contexts (e.g. floor, trash, pit deposits, burials) were screened (5 mm mesh) as samples that varied (0-100% of a given deposit) according to the trench supervisor's assessment of the context. This work revealed architecture, industrial areas, and associated trash deposits that belong to the Amuq E (or Ubaid-related, c. 5000/4900-4400/4300 BC) , Amuq D (c. 5200-5000/4900 BC), and a late phase of Amuq C (or Halaf-related, c. 5500-5200 BC) periods. In addition, a team from Boğazıcı University Kandilli Observatory conducted a magnetometry survey over two large portions of the site. The results of this work are presented in reverse chronological order.

³ The season ran between 1 August and 22 September 1999. The excavation staff included the following people: Aslıhan Yener (University of Chicago), project director ; Christopher Edens (University of Pennsylvania), excavation director; Steven Batiuk (University of Toronto), Jesse Casana (University of Chicago), Rana Özbal (Northwestern University), Amir Sumikai-Fink (University of Chicago), Bakiye Yükmén (Mustafa Kemal Üniversitesi), trench supervisors; Bülent Demir, Özlem Doğan, Lale Döğüscü, Serap Güzel, Dilem Karaköse, Halim Kes (Mustafa Kemal Üniversitesi), Heather Snow (University of Toronto), Nadine Chenier (Laval Université), trench assistants; Benjamin Diebold (Yale University), pottery analysis; Heidi Ekstrom (Saint Mary's University), flotation and botanical analysis; Michelle Loyet (University of Illinois), faunal analysis; Brenda Craddock (independent scholar), illustration; Holly Lundberg (Field Museum of Natural History) and Marcela Rossello (Queen's University, Ontario) conservators; Çiğdem Lüle (Ankara University) studied the mineralogy of small finds. Bryan Earl (independent scholar), Ergun Kaptan (MTA Mineral and Research General Directorate) and Hadi Özbal (Boğazıcı University), archaeometallurgical survey. Cemil Gürbüz and his geophysics team from Kandilli Observatory at Boğazıcı University applied the magnetometer at Kurdu. Ahmet Beyazlar served as the General Directorate representative. The research for this article was supported by grants from the Oriental Institute, the Institute of Aegean Prehistory, Kress Foundation, the Fulbright Program, Boğazıcı University and numerous private donors. The research was conducted under the auspices of the Turkish Ministry of Culture, Directorate General of Monuments and Museums. In Ankara we have been greatly assisted by the Acting General Director of Monuments and Museums, Kenan Yurttağül. We thank the Antakya Archaeological Museum director and staff members Hüseyin Dinçer, Faruk Kılınç, Murat Süslü, and Aslı Tütüncüoğlu. Special acknowledgement and thanks go the Mustafa Kemal University and its Rector, Professor Haluk İpek, Provost, Mikat Doğanlar for their continued help and guidance.

Amuq E

Tr 11 and 15 were two 10 x 10 m squares placed along the west side of Tr 2, with Tr 15 encompassing the 1996 sounding (see Fig. 2 for locations). After the plowzone had been stripped off both trenches and the location of the 1996 sounding firmly identified, time allowed excavation only of the northern half of Tr 15 (north of the 1996 sounding). These trenches were intended to investigate further the complex of small roomed buildings and exterior spaces of Tr 2, to determine the wider context of the burnt architectural collapse and grain deposits of the 1996 sounding, and to identify firm stratigraphic links between the two earlier operations.

As elsewhere on the eastern slope of the south mound, the modern plowzone covered a deeply developed soil 50 cm thick, characterized by carbonate nodules and heavy bioturbation (in certain sections, identifiable animal holes make up roughly half the exposure). The deep bioturbation obscured stratigraphic context, leaving 'floating' features of more durable materials (e.g. clusters of grinding stones in Tr 11). Although most of the artifacts in this soil were prehistoric, more recent objects like an early Byzantine copper coin also appeared.

The uppermost intact and coherent deposits in both trenches (phase 1) were the kilns, surfaces, other features and associated deposits of an industrial complex. This complex was most clearly preserved in Tr 11, where a set of four (perhaps five) kilns were set around two sides of a partially walled open space (Fig. 3). The kilns varied in shape (kiln 11:4 was square, kilns 11:6 and 11:7 were round, and kiln 11:8 was sub-rectilinear), but had similar dimensions and floor area (0.9-1.1 x 1.1-1.2 m, with floor areas 1.10-1.32 m²; see J. Casana below for further discussion). Shallow rectangular pits 11:16 and 11:19 accompanied the kilns in the same alignment; only 10-15 cm deep, these pits were filled with a fine silty soil. Poor preservation prevented identification of kiln openings, so the functional relationship between kilns and pits remains unclear. The perimeter wall 11:11, 11:17 and 11:18 formed the dog-legged northern edge of the complex, with kiln 11:8 and pit 11:16 set into the dog-leg. This wall, a 25-35 cm wide mud brick structure, was in places fire-hardened, especially in its western portions, but was lost to erosion to the east. The short stretch of walling 11:9 appeared in the southeast corner of the complex. Made of irregularly sized brick and baked hard and reddened, this structure may have been the fragment of an additional perimeter wall. The kilns and wall framed a surface 11:14, which consisted of a dense and very compacted laminated clayey silt that contained numerous flat-lying sherds and other artifacts; a notable proportion of the sherds were overfired wasters. Just as with the northern perimeter wall, erosion had truncated the floor to the east. Similarly laminated clayey silt surfaces appeared to the north (surface 11:13, fire hardened and reddened near wall 11:17/11:18), west (surface 11:20) and south (surface 11:15) of the complex. These accretion surfaces were 7-8 cm thick. In Trench 15 Phase 1 may have been represented by the extremely poorly preserved pyrotechnic facility 15:3. This was probably a kiln but it was so heavily damaged by erosion and plowing that this identification is not certain. A laminated clayey silt surface 15:5 comparable to those in Tr 11 extended eastward of the facility. Ephemeral traces of kiln flooring or other reddened and

hardened surfaces appeared in western part of square.

Below the kiln complex, excavation exposed portions of four earlier buildings, together with associated surfaces and facilities (Fig. 4). Although most of these remains belong together as phase 2, certain stratigraphic uncertainties prevent grouping them all. First the buildings themselves will be described, and then the stratigraphic ambiguities will be discussed.

An erosional wash deposit of pebbly silt (loc 21) separated the phase 1 kiln complex in Tr 11 from a poorly preserved group of rectilinear walls and features (Building A). The wall 11:34, 30 cm wide and made of heavily chaff tempered pisé, formed the western margin of this unit. The rectangular installation 11:24, constructed of chaffy pisé and heavily burnt, sat on the north side of wall 11:34; this structure is very similar to the phase 1 kilns in form and intensity of burning. Floor fragment 11:23, also burnt, ran eastward from this installation; a broken pot lay upon this surface. An intentional fill of very dense clayey silt that contained occasional Amuq C sherds extended onto this floor, and served as the footing for the rectilinear burnt feature 11:35, which had a basin-like floor. South of wall 11:34, a pebbly and carbonate-rich clayey silt formed an exterior surface in which occurred flat-lying sherds. This surface enclosed the rectangular packed clay surface or floor 11:33, covering a 1.7 x 1.1 m area. Although no walls were associated with this surface, it is distinctive enough to be considered a floor, perhaps for an outbuilding constructed of reeds or similar material.

In the southwest corner of Tr 11 walls 11:28 and 11:29, constructed of blocky gray-brown pisé, formed the corner of a room (Building D). Excavation inside the room (11:31) encountered grinding stones and an Amuq E bichrome jar but could not identify the surface upon which these material rested. Abutting wall 11:28 on the east was rectangular surface 11:30, paved with pisé slabs 10-15 cm wide laid in elongated rows sometimes with vertical sherds placed in the joints; a broken pottery vessel lay upon this surface. Ephemeral traces of walling seemed to frame this pavement, and the exterior surface 11:27 lay beyond to the north and east. Four small circular features in surface 11:27 framed the paved surface 11:27, and may represent post footings for an awning. The two features along the north side of the pavement were packed with sherds, bone, and other debris, while the two along the east side were filled with blocky clay similar to pisé wall material. Surface 11:27 extended northeastward, and framed the 'U'-shaped oven 11:25 north of Building A. The pit 11:32 was later cut into pavement 11:30 and surface 11:26, and remains unphased.

In the western end of Tr 15 walls 15:12, 15:14, and 15:23 framed two rooms in the corner of Building C (Fig. 4). These walls varied somewhat in their construction: wall 15:14 was a 60 cm wide double coursing of fine gray pisé with pebble inclusions, walls 15:12 and 15:23 a single 30 cm wide course of fine gray chaff tempered pisé. The room fill 15:10 contained a broken pot and reed impression upon a fragmentary burnt floor, all buried under wall collapse. Outside the building, the deposit 15:18 (=15:13) ran over the stub of wall 15:12 in places and also both covered and enclosed the unexcavated feature 15:19, an oval ring of burnt clay surrounded by gray ashy soil (perhaps an oven). Further east were two additional ovens. Oven 15:7 was a domed oval, about 1 x 1.6 m in area, within a thick (30 cm) rectilinear encasing wall; the ashy contents included abundant burnt grain. Burnt collapse 15:9, mixed with ash and burnt grain, lay against this oven and covered the similar oven 15:21, exposed

but not excavated in 1999. A third smaller (perhaps .5 x .8 m) rectilinear installation (feature 15:8) lay to the south; with only its southeast corner and floor preserved, the nature of this facility remains unclear. The fine silty deposit 15:20, which contained dense burnt grain, dipped sharply eastward from the collapse 15:9 toward Building C.

A room formed by walls 15:15 and 15:11 occupied the eastern end of Tr 15 (Building B). As with Building C, these walls were constructed in different manners. Wall 15:11 was built in a 75 cm wide double coursing of brownish gray blocky pisé, and wall 15:15 consisted of a 40 cm wide single course of finer gray pisé (with some blocky admixture and burnt grain inclusions). The wall closing off the western end of the room was difficult to discern, this area being heavily disturbed by animal burrows. The two walls ran into the eastern section and Tr 2. Although wall 15:11 appears to be an extension of wall 2:22 (Tr 2 phase 2), they actually seem not to be on the same alignment, thus creating a stratigraphic question resolvable by future removal of the baulk between the two trenches. The contents of the room 5:16 included a dense concentration of burnt grain, but excavation reached neither a floor nor seemingly the base of the walls. The silt deposit 15:20 with burnt grain may either run against Building B or continue beneath this structure.

The stratigraphic relationships among these buildings remains unsettled. Buildings C and D were most likely in contemporary use, given their orientation and elevation.⁴ The group of ovens in Tr 15 fall into at least two different phases, with ovens 15:7 and 15:8 associated with collapse 15:9, which covered oven 15:21; oven 15:19 also seems older. The exterior deposit 15:18 forms a solid link between oven 15:7 and Building C, grouping this oven with the three buildings. The silty deposit 15:20 with dense burnt grain slopes up against collapse 15:9, and the grain itself perhaps derived from oven 15:7. Deposit 15:20 may run down against Building B or beneath it, so this building remains either contemporary with or earlier than the other buildings. The 20+ cm difference in elevation across the baulk between the Building A surfaces and the deepest exposures within Building B strongly suggest that the latter is older. The grainy silt deposit 20 would then run against the Building B wall stubs and the localized concentration of burnt grain (very similar to the deposit 15:20 grain in specific composition; see Ekstrom, below) would be an post-occupation trash deposit inside Building B. In this event, Building B and the unexcavated ovens 15:19 and 15:21 represent phase 3, and would be aligned with the Tr 2 phase 2 architecture; the remaining buildings and related facilities would then belong to phase 2, and align with the Tr 2 phase 1 ephemeral burnt architecture.⁵ The same relationships also suggest that the Building A remains post-dated deposit 15:20 and Buildings C and D, even though the exterior surfaces related to Buildings C and A seemed to run together. These proposed stratigraphic relationships can readily be tested with additional excavation.

⁴ Nevertheless the relationship between Buildings C and D remains troublesome, partly because of the baulk, and partly because of the lack of an extension or return wall in Tr 15 for wall 11:28. This issue will be clarified by future excavation.

⁵ Since erosion has truncated the eastward extension of Tr 11/15 phase 1, this phase should also be missing from Tr 2 downslope.

Early Amuq E

This ceramic subphase appeared in Tr 1/6/9 on the current summit of the south mound, where extensive platforming and associated architecture lie just beneath the surface. Tr 14, placed at the edge of the bulldozer cut along the eastern side of this mound, exposed architecture of a similar date but very different character. The bulldozer cut deepened an existing indentation in the south mound (shown in the 1938 topographic map; Braidwood and Braidwood 1960 Fig. 13) to create a level agricultural field at the base of the mound. The west section of the cut exposed several meters of steeply sloping bedded ash and trash deposits that run southward up against apparent platforming and other architecture. Both Braidwood's results in 1938 and our own in 1998 indicate that this area of the south mound may be the only portion of Tell Kurdu in which a relatively complete stratigraphic sequence (Amuq C-early E) is available. The excavation in Tr 14 is the upper part of a step trench that seeks to document this sequence, with the goal of obtaining a finer-grained ceramic sequence than Braidwood was able to accomplish during his limited time on the site.

Tr 14 began as a 4 x 8 m trench oriented E-W perpendicular to the edge of the bulldozer cut, placed above the sloping trash and ash beds and between large animal holes in the bulldozer section (Fig. 5). During the course of the season, the trench was extended another three meters eastward (downslope), and divided into two steps: Step I a 4 x 4.5 m area to the west and Step II a 4 x 5.5 m area to the east, separated by a 50 cm wide baulk. Although Step II attained a depth half a meter greater than did Step I, the two parts of the trench remained within the same stratigraphic phase due to sharply dipping stratigraphy in this part of the mound.

Unlike the bulldozed summit of the south mound, where only a thin current plowzone covered intact archaeological deposits, east edge of the mound retained a deeply developed soil. In the Tr 14 exposure this soil (including the current plowzone) was 60-70 cm thick to the west and deepened to 90 cm to the east. Below the recent plowzone, this soil was a light brown blocky loam in which nodules of redeposited calcium carbonate increased with depth. Architectural collapse, ash, several concentrations of ground stone and pottery, and a small relatively recent hearth floated within these soil units, their original contexts having been disrupted by pedogenesis. The contrast between Tr 14 and Tr 1/6/9 has important implications both for appreciating the extent of recent disturbance of the south mound and for understanding earlier mound topography and site formation (see below).

This thick topsoil capped intact architecture and associated trash deposits. The 1999 work uncovered two architectural phases across both steps of the trench, the lower phase of which appeared at the bottom of the exposure at the end of the season and remained unexcavated. The upper architecture (phase 1) included portions of three rooms of a building in Step I and a contemporary cross wall at the east side of Step II, with sloping trash deposits running between them.

The Step I building was represented by a large portion of one room (the north room) and corners of two additional rooms (south and west rooms), the rest of the building extending into the west, north and south sections (Fig. 5a). The well-preserved walls 6 and 7 that formed

the southeast corner of the main room still stood 55-65 cm high. These two walls were constructed in courses of gray brown pisé, in which thin horizontal joints of mud were visible but vertical and cross joints were absent. A 1.1 m wide doorway in wall 7 gave access to the north room from the east. A pisé blocking in the doorway raised the height of its threshold at least once, in order to accommodate the deposits that accumulated inside the north room during the existence of the building. Wall 43 formed an extension of wall 7 to the southeast, but its preserved top was noticeably lower (35 cm) than that of wall 6 and 7 and it was somewhat wider than wall 7. Wall 27, the western wall of the north room, was similar in size and construction technique to the other walls of this room, but was poorly made and badly preserved to only 35 cm in height. These walls went out of use at different times during the life of the building, with both walls 27 and 43 disappearing before activity ceased in the north room.

The north room contained a 60 cm thick series of floors interstratified with accumulated debris. The earliest definite floor (floor 45) was a surface of compressed white soil with numerous reed impressions. This floor abutted all three walls of the north room, implying that wall 27 already existed at this point. Feature 44 appeared within the floor, a cylindrical arrangement of broken grinding stones and other rocks, sherds, bone and other artifacts set in clay, 35 cm across and 40 cm deep, and capped with a 4-5 cm thick coat of plaster flush with floor 45. The purpose of this construction remains unclear. Floor 45 rested upon deposit 46, a layer of red-brown earth that ran up against the lower coursing of the room's walls; a large grinding stone faced with plaster on one side had been emplaced at the bottom of deposit 46 next to the lower threshold of wall 7. Since the coursing of wall 7 rested upon a compact red silt at the same elevation as deposit 46, the later deposit probably represents deliberate fill laid down during the initial construction (or a major renovation) of the building. Floor 45 also capped a 35 cm thick pit-like accumulation of ash that covered an irregular 2 x 2 m area in the southern end of the building; this ash accumulation 50 contained notable amounts of oven lining and discarded ground stone, and may have been a pit cut into deposit 46 or the remains of a thoroughly collapsed oven around which deposit 46 was placed.

After a brown earth with ash lenses (loc 38, 5 cm thick) had accumulated upon floor 45, a second white beaten earth surface (floor 30) was laid down. Another brown earth with ash lenses (loc 28), 10 cm thick, then covered floor 30. At this point the nature of deposition inside the room changed, and a 20 cm thick deposit of thinly bedded ash and earth (loc 15) formed as an accreting surface within the room above loc 28. This accreting surface was associated with a succession of ovens in the southern end of the room. Hearth 16 lay in the northwest corner of the excavated exposure, near the presumed corner of the room within the accumulation of loc 15. Floor 14, a white beaten earth surface capped loc 15 and ran across wall 27. At some point during the build-up of room contents, a deliberate blocking of pale brown pisé coursing raised the threshold of the doorway in wall 7. The resulting upper threshold was definitely associated with floor 14 and may have been related to floor 30. The new threshold was noticeably higher than both the room floor and the exterior surface to the east, and a pisé step against the outside face of wall 7 facilitated egress. An ash deposit spread over floor 14 and across the upper threshold. The final unit of accumulation within the room

was architectural collapse and subsequent soil development that buried the last of the ovens and filled the room to the top of the wall stubs.

The ovens in the north room presented the same shape, orientation and dimensions. Oven 13 was the best preserved of the three. This oven was shaped like a 1.1 x .7 m flask, with curved side walls and rounded bottom, but flat vertical rear wall at its SE end; squared-off rim fragments in the collapse within the oven showed that it was open at the top. Placed in the corner of walls 6 and 27 with its long axis parallel to wall 27, the oven also had an opening through its NW end, with a shallow ash-filled pit (loc 11) just outside. The oven walls were fire reddened pisé, 3-4 cm thick. Inside the oven was an ash bed capped by oven wall collapse, and then a subsequent accumulation of ash, some sherds and animal bone (loc 5). Oven 21 and its relining 18 were also flask-shaped with a straight vertical rear wall and ash pit (loc 24) immediately outside a poorly preserved entrance from the NW. The base of oven 21 was laid within foundation pit 33, cut into floor 30: this hollow was partially filled with small stones (including numerous broken grinding stones) and ash, and its edges stabilized with thin plaster lines. A retaining wall 32 was placed against the western side of oven 21 at the same time that oven 13 was constructed, and perhaps as part of the rehabilitation of the oven. Made of red and gray bricks, this structure had two parts: one course curved around the edge of the oven 21/18 west wall, and an abutting straight course ran between oven 13 and oven 21/18.

The stratigraphic relationships of these ovens with the floors and accumulating deposits inside the north room are somewhat unclear. Oven 21, the earliest of the series, may have been emplaced into floor 45 but seems more likely to have been built when or after floor 30 had been laid down. The base of oven 13, the latest of the series, rests upon the latter floor: since its shape requires that the oven be sunk at least partially into a surrounding surface, it probably was built after deposit 28, or even part of surface 15, had accumulated. Ovens 13 and 18 (the renovation phase of oven 21) were in simultaneous operation during all or most of the surface 15 accretion, but oven 13 remained active after oven 18/21 had passed out of use, as floor 14 covers the latter installation as well as wall 27.

The other two exposed rooms of the building presented less eventful depositional histories. The south room contained a succession of two, and perhaps three, floors separated by brown trashy soils (loc 51=42, 37, 22 from bottom to top). The lowest of the floors was a patch of an irregular reed-impressed white surface that sloped markedly to the southeast; the higher two floors were also reed-impressed white surfaces. Although some ash was present in the deposit above the second floor (loc 37), the sediments in the south room generally lacked the detritus from intense firing activities evident in the north room. The chronological position of this room remains ambiguous. Wall 43 was not a straightforward extension of wall 7, being both wider and preserved to a lower elevation than the latter wall. The south room passed out of use before the north room: the stub of wall 43 lay below both the uppermost ash beds associated with the final phase of oven activity in the north room, and the upper portion of loc 22 (which must in turn be roughly equivalent to loc 41=34; see below). The relative sequence of construction is uncertain, as excavation has not yet identified the base of wall 43, and bonding evidence is not available -- the wall may equally have been erected after or before walls 6 and 7. The west room, defined by wall 27 and the western end of wall 6 barely

appeared within the excavated area. The sediment in this narrow space was a very dense, hard brown soil within which a possible surface appeared. Like the south room, the west room passed out use before the north room, floor 14 of which covered wall 27 to unite the previously divided spaces.

The upper units of the sloping trash deposits visible in the bulldozer cut ran up against the Step I building from the northeast. The 1999 work uncovered six distinct units of these deposits. An extremely hard gray brown deposit (loc 54=60) formed the bottom of the 1999 exposure; although this unit was not excavated, the eastern bulldozer section shows it to be about 5 cm thick and to cap a softer ash deposit. Above loc 54=60 lay a 2-4 cm thick bed of hardened dark gray to black ash accompanied by abundant organic material (loc 48=52). Capping this ash bed was a nearly continuous surface of dense blocky white sediment, 1-3 cm thick, that bore abundant impressions of reeds (loc 36=40). The reed impressions presented no coherent orientation, either of matting or of buried natural growth, and seem rather to have been a haphazardly deposited bed. A 7-10 cm thick trash deposit of brown earth (loc 41=34) with abundant animal bones (notably complete skulls and vertebrae of large animals) covered the reed surface, pinching out to the northeast; this deposit also covered a lens of ash (loc 47) that rested directly upon the reed surface. A relatively thick (14-18 cm) deposit of black and dark gray ash (loc 12=23=39) appeared above the brown trash unit; the heterogeneity of this deposit seems to reflect disposal of ash from several different sources. The Step I building was one such source -- the ash can be traced across the upper threshold in wall 7 and onto floor 14. A brown soil with carbonate concretions adjacent to the Step I building (truncated by erosion to the east) contained some ash lenses, fragments of oven wall, and traces of hardened exterior surfaces (loc 9); the nature of this sediment suggests that post-depositional soil development obliterated remains of the final phase(s) of activity within the building.

With the exception of the ash bed 12=23=39 and the truncated surface that overlies it, these units ran downslope to the line of wall 56 (Fig. 5b). This wall was itself poorly preserved and remains somewhat hypothetical, its existence implied by a very clear plaster line that obliquely crosses Step II and by the abrupt eastern termination of the bedded trash and ash deposits above this line. Wall 55, a gray pisé structure only 22 cm thick, followed an irregular line within loc 54=60 in Step I at right angles to wall 56; the putative corner formed by these two walls lay north of the excavated exposure. Enclosed by the lower units of the accumulating slope of bedded trash, these two walls identified the earliest architectural phase discovered in the 1999 work, a phase not yet excavated. Northeast of the wall 56 line, excavation encountered a different set of trash deposits and architecture. Here the trash deposits 58, 57, and 35=53 were highly indurated gray soil with ash and charcoal, abundant small sherds and fragmented animal bone, forming three similar beds separated by very thin white surfaces. The deposits 58 and 54 that bracket wall 56 were very similar in appearance and elevation, but cannot yet definitely be equated. The well-built wall 29, an associated surface and related deposits lay upon these hard trash deposits. Wall 29 was constructed in brick-like courses, two wide and preserved three high, a thin reed bed separating the courses; the absence of clear joints within the coursing leaves uncertain the use of bricks in this construction. A white plaster appeared on the western face of this wall, and a patch of white plastered floor abutted

the wall on the east. Mixed wall collapse and trash enclosed the wall; to the west, this deposit (loc 26) ran over wall 56 and onto the northeastern edge of reed surface 36 and interdigitated with ash bed 39. Although loc 26 could not be divided into finer components, the greater part of this 30 cm thick unit appeared to have formed after ash 39 had been deposited. These stratigraphic relationships place the construction and then collapse of wall 29 within the span of the Step I building, and after the burial of walls 55 and 56.

Late Amuq C

The 1998 magnetometry survey revealed extensive and seemingly tripartite architecture in the center of the north mound. Tr 12/16 explored the western edge of this area. Both trenches were 10 x 10 m, but only the western half of Tr 16 was excavated. These trenches uncovered 150 m² of a large building complex, but the exposure was not sufficient to determine the overall lay-out (tripartite or otherwise) of the building (Fig. 6).

Nearby excavation in 1998 (Tr 7) showed that this portion of the north mound lacks a deeply developed topsoil, presumably a reflection of recent bulldozer grading for irrigation. Tr 16/12 repeated this finding. Here a shallow active plowzone (loose soil, 5 cm thick) and irrigation horizon (hardened blocky silt with deep orthogonal cracking, 15-20 cm thick) directly covered intact archaeological deposits; plow scars appeared on wall stubs and cut across features. The features truncated by the bulldozer and plow contained Amuq D ceramic assemblages, suggesting that the recent disturbances probably removed Amuq D architecture as well. In the event, the highest surviving buildings carried an Amuq C identity.

The surficial truncated features, phase 1, involved pits and burials cut into the underlying intact deposits of phase 2. Since the surfaces from which these features originated are now lost, the features do not necessarily refer to contemporaneous events, and phase 1 has little chronological coherence. The features grouped in phase 1 include four pits, two adult burials and an infant jar burial. The pits cut through the architectural collapse and into the underlying phase 2 buildings and deposits. Pit 12:11 (2.1 m across, 50 cm deep), cut through wall 12:16 of phase 2, contained bedded lenses of ash and trash, diverse domestic artifacts, and some Amuq D pottery diagnostics (fine-line painted, corrugated and corrugated painted, wiped burnished, and bow rims). Pits 12:8 (1.3 m across, 30 cm deep), 12:10 (25 cm across, 10 cm deep), and 16:12 (1.0 m across, 35 cm deep) contained less ash and fewer artifacts.

The infant jar burial 12:12 lay within a shallow pit that cut into collapse and wash that covered phase 2 architecture. No burial goods accompanied the interment. Burials 12:13 and 12:14 were adults placed in pits. Burial 12:13 was extremely poorly preserved -- only the arms, a scapula and several ribs remained in anatomical position, the remaining bones plucked out of context by the plow which also obscured the pit into which the body had been placed. Although a plow scar ran through burial 12:14, and the cranium and pelvis of the skeleton were missing, this burial was otherwise intact. The body had been placed within a pit in a tightly flexed position on its left side, its head oriented westward and its face looking north. The burial pit was placed against a wall of a phase 2 room, cutting through both room contents and floor (floor 12:28) but not the wall, circumstances suggesting that interment occurred as a late

episode in the use of the room or soon after its abandonment. The burial pit contained five sling pellets and a bone awl.

Phase 2 of Tr 12/16 was an architectural complex that covered the entire excavated area (Fig. 6). The complex included a suite of rooms, a walled courtyard with ancillary structures, and several other outdoor spaces. The walls of this architectural complex presented strikingly various character. Three major walls -- 12:15, 12:16, and 12:29=16:6 -- and the northern wall of the linear suite of rooms (wall 12:21) were exceptionally thick (.7-1.1 m wide) and extremely soft in consistency. Several cuts into these walls showed them to consist of thin beds of puddled greenish gray ashy mud; at least in wall 12:15 more solid brick-work appeared below these beds (bricks of 55 x 20-25 cm format). Excavation has not yet reached the foundation of any of these walls, leaving this aspect of their construction unknown. An outer skin of mud brick appeared on several walls: wall 12:49 along the north face of wall 12:15, wall 16:40 along the east face of wall 16:6, probably along the western face of wall 12:29, and perhaps along the north face of wall 16:21. Wall 16:40 was laid in a header-and-stretcher pattern, with alternating gray and red bricks. Since this brickwork never appeared on both faces of a given wall, and may in fact represent secondary construction, the builders probably used temporary slurry walls (e.g. braced wooden planking) to contain the puddled mud of the major walls. A white plaster finish appeared on the western face of wall 12:16.

Wall 16:8 ran parallel to wall 12:16=16:6 about two meters to the east, and was constructed of pisé (or possibly of indistinct mud bricks) in which a clear joint defined two courses across the width of the wall but with no other visible jointing; this wall was 70 cm thick. The poorly preserved wall 12:57 may be an extension of wall 16:8. Mud brick wall 16:17, two course (80 cm) wide, ran northeastward from wall 16:8, forming the northwest side of an open area. Cross walls ran between the parallel walls 16:8 and 12:16=16:6, to frame the suite of rooms. Wall 12:21, previously described, was the northernmost of these cross-walls to be excavated; the area north of wall 12:21 was a brick paved surface that is not certainly the interior floor of an additional room. The four additional cross-walls that appeared within the excavated area defined the five rooms of the suite. These walls presented alternating formats of construction and size. Wall 12:24 was a coarse brown pisé structure; like wall 16:8 it was two courses thick but only 35 cm wide. Walls 16:20 and 16:9 were also pisé, but only one course thick and 25 cm wide. Wall 16:37, between the latter two walls, was mud brick with clear joints, one course thick and 40 cm wide.

These cross-walls formed rooms about 1.5 x 2.0 m in size. Each room presented a somewhat different depositional history. In the northernmost room, a plastered brick pavement (floor 12:27) covered an earlier room deposit (12:50); excavation did not reach the base either of the latter deposit or of the walls of the room. Above floor 12:27, deposit 12:17 contained a secondary pebble surface. The next room in order was filled with a homogenous and soft gray ashy soil (16:22) that covered a compacted pale brown surface into which sherds had been impressed (floor 16:28). The latter floor was identical in character and elevation to floor 16:32 in the third room to the south; this circumstance implies that the wall 16:20 separating these two rooms was a secondary construction upon this floor, built to subdivide a larger room. The soils above floor 16:32 included room deposit 16:26 below weathered wall collapse. The

striking differences in soils on each side of wall 16:20 suggests that one or both of these rooms may have been deliberately filled.

The fourth room underwent significant alteration during its use-span. Pisé wall 16:38, both faces of which bore a thick dense plaster, partitioned this room into two equal parts. Whether this 25 cm wide wall is a secondary division of a once larger room remains uncertain, as excavation did not reach the bottom of wall 16:38. The space west of wall 16:38 was then filled with solid brickwork to create a small platform, 2.8 x 1.2 m in extent (platform 16:18). The space east of wall 16:38 initially had a plastered surface (16:42) and was filled with reeds and pisé to form a raised surface (platform 16:19) into which was set a bin (16:24) and a hearth (16:3), both oriented parallel to the main wall 16:8. A thin deposit of weathered pisé collapse separated the latter two phases of construction.

The southernmost room of the suite contained an ashy gray soil (room deposit 16:13) upon a yellow silty surface (floor 16:25) than in turn covered an earlier room deposit (16:27). Several installations were constructed upon floor 16:25. Two small mud brick benches, 16:14 and 16:16, abutted wall 16:9. A thickly plastered circular columnar feature, 1.2 m across and 30 cm high, was free-standing upon the floor; the fire-reddened upper surface of this feature suggests use as an oven foundation or hearth..

The courtyard bound to the south by wall 12:15 and to the east by wall 12:16 was paved with mud brick and contained at least one free-standing room and several different additional installations. The paving appeared as long parallel joints between red mud brick coursing, the cross joints of which were infrequently visible. While for the most part the coursing was linear, tightly arced coursing did appear in the southwestern portion of the exposure. The brick paving formed at least two distinct superimposed surfaces separated by red bricky soil (upper paving 12:18, lower paving 12:33 and 12:35), and a sounding the southwest corner of Tr 12 shows that mud brick coursing extended some 40 cm below the upper preserved surface of the courtyard, indicating that the paving periodically was renewed.

Mud brick walls 12:30, 12:36, 12:37 and 12:38 formed a seemingly free-standing room, 3.0 x 2.5 m in extent, at the northern end of the exposure. The walls, generally thin (25 cm) and poorly preserved, survived only to 5-7 cm in height, and gave no indication of a doorway. The walls seem to have been set upon the lower paving 12:35 (the upper paving runs up to the walls), implying that this structure was built as a secondary feature of the courtyard. The plastered surface 12:28 formed the room floor; this surface sloped down to the east; impressions of reed matting formed a large circular patch on the floor across the center of the room. A plastered basin set into the floor occupied the northwestern corner of the room.

South of this room, screen wall 12:20 ran across the western portion of the courtyard, partitioning this space into two parts. This mud brick wall was built from an undetermined surface below the lower courtyard paving (paving 12:33 south of the wall, 12:35 to the north), but continued in use even after the upper pavement was laid down. Immediately east and northeast of wall 12:20 lay two sunken hearths, one embedded in each of the two courtyard pavings. The upper hearth (loc 12:23) was a roughly circular pit, 60 cm across and 10 cm deep, and filled with black ashy soil. The lower hearth (12:32) formed an elongated oval pit, 75 cm long, 45 cm wide, and 15 cm deep. This hearth was also filled with a blackened ashy soil, and

heat had reddened the bottom and lower sides of the pit. Two large basins punctuated the center of the courtyard, south of wall 12:20, and a third basin lay in the southeast corner of the courtyard. The two central basins are associated with the lower pavement. Set side-by-side, and separated by a low ridge of brickwork, the basins were lined with a mud plaster. The northerly basin 12:39 formed a 1.8 x .8 m oval and was 20 cm deep, the fill of which was laminated silts washed off the courtyard surface; the southerly basin was more square in shape, 1.3 m to a side and 10 cm deep, and filled (perhaps deliberately) with loose red sediment similar to the paving bricks of the platform. The third basin 12:48, associated with the upper pavement and partially set into wall 12:15, was circular (nearly 90 cm across) and lined with white plaster; poorly preserved, only the bottom of the basin survives.

The space south of wall 12:15 and west of wall 12:29 presented a brick pavement, the coursing of which arced to accommodate the corner created by these two walls. Unlike the courtyard, the exposed portion of this pavement lacked inset features or ancillary facilities. Nonetheless, this space almost certainly represents an outdoor area contemporary with the courtyard itself. The open space east of wall 16:8 presented a very different character: a sequence of thinly bedded wash deposits (loc 16:5) at least 60 cm thick that sloped down northeastward from the top of wall 16:8 to fill an existing depression. The wash deposits covered pit 16:35 (55 cm across, 70 cm deep with a bell-shaped profile, and filled with soft trash and ashy soils) in the basal exposure of the depression. While the wash deposits themselves clearly post-date phase 2, the depositional topography indicates a significant slope east of the phase 2 architecture; additional excavation is required to assign pit 16:35 to one or the other phase.

Excavation reached earlier, phase 3 architecture only below floor 16:28 and 16:32. These floors covered a silty sediment (16:31=16:33) that extended beneath wall 16:20, surrounding a wall that ran parallel to the later wall 16:9 through the two phase 2 rooms, taking a southwestward turn to form a corner below floor 16:32. A small 15 cm deep sounding into the 16:33 deposit reached a black surface, just above which sat an intact small plain pot.

South Mound Topography and Site Formation

Several excavation units, other soundings, and areas of bulldozer section cleaning conducted on the south mound in 1999 lacked coherent exposures of architecture, but nevertheless provides valuable information about the site.⁶ This information is here combined with results of the other excavations of 1999 and 1998 to draw conclusions about site topography and formation.

Tr 13 was a 5 x 5 m square placed on the lower northwest slope of the south mound, northeast of the expected location of Braidwood's Trench II (Fig. 2), with the intention of testing this part of the mound for bulldozer impacts and the depth and nature of underlying intact deposits. This unit reached a maximum depth of 2.8 m. The upper 35 cm contained four

⁶ In addition H. Ekstrom, the project paleobotanist spent several days further investigating the burnt grain deposits in Tr 4b (see Yener *et al.* in press.).

distinct parallel soil levels -- plowzone, a dense gray clay, a brown granular soil, and a dense buff clayey silt, all uniformly sloping from SE to NW. Below 35 cm was a dark brown blocky soil with carbonate concretions that became denser with depth, extending to a paler soil with fewer carbonates at 1.4 m below the surface. Modern materials (plastic, sugar sacking, etc.) occurred through the upper half meter or more of this sequence, and occasional glass beads, a copper dish and an Ottoman period pipe appeared throughout both the dark brown and underlying paler brown soil (to 1.6-1.8 m below the surface). Animal holes were extremely dense through these soils, and the recent artifacts imply relatively deep disturbance. The nature of the upper four soil units and the regularity of their boundaries suggests that these were formed by the diagenetic effects of irrigation, perhaps on redeposited (bulldozed) soil. However, the uniformity of the dark brown soil, the density of carbonate nodules, and the appearance of stratigraphically floating features (among them the ghost of a circular pit identified by a heavily concreted columnar mass of burnt stones, ground stone, sherds and bone, 40 cm high) within it more suggest long-term soil formation of the kind found elsewhere at Kurdu. Moreover, both brown soils also contained sloping lines of small rock and sherds visible in section, and their abundant sherdage typically was very fragmented and rounded, implying that they were accretions of slope wash. More intact cultural deposits began to appear at 1.6 m below surface. These deposits, also sloping to the NW, were mostly beds of ashy soil, a hearth, a large pit, and, at the bottom of the exposure, the stub of a curvilinear pisé wall. The pottery in the intact archaeological deposits was Amuq E in character, as was that in the developed soil overburden. The latter soils also contained a surprising number of prehistoric small finds, including animal and human figurines; incised decorated beads, glass beads, other beads and pendants; stamp seals and a cylinder seal; stone vessels; and a stone labret.

Tr 18 was a 3 x 3 m sounding on lower north skirt of the south mound, a portion of the mound not previously explored. Earlier surface collections had encountered a number of pottery wasters in this area and the adjacent saddle between the two mounds. Tr 18 had the general goals of documenting recent disturbances in this part of the mound and ascertaining the depth and nature of intact deposits below disturbance, and the more specific goal of finding a source for the surface wasters. Excavation indicated that the modern plowzone is the only recent disturbance in this area, and developed soil remains intact above prehistoric architecture. The developed soil (about 50 cm thick) covered a mottled silty soil (loc 2+5) that contained ash lenses, shallow trash pits 4, 7 and 8, the base of oven 6, and child burial 3. The latter was a small elongated pit (75 cm long, 25 cm wide) lined with traces of matting, in which appeared a cranium at the WSW end, a complete unpainted pot at the ENE end, and a few fragments of post-cranial elements near the skull. The oven floor 6 (a fire-reddened circular clay surface, 70 x 80 cm in area, 10 cm thick) appeared at the bottom of the mottled soil; pit 7, filled with ash and burnt bone and sherds, may be associated with this oven. Soil 2+5 had also been affected by pedogenesis that obscured stratigraphic relationships among these elements. The soil lay directly upon and within architecture, the top of which lay within 60 cm of the surface (Fig. 7). The two light brown pisé walls 12 and 13, each 30 cm wide, formed the corner of a room. Two fragmentary walls of very dense light gray pisé lay within the room, wall 17 placed against the south face of wall 12 and wall 14 crossing the room

parallel to wall 13. These walls are either secondary additions to the room or an earlier phase of the building. Wall 11 ran along the western face of wall 13; this wall, 60 cm across, was constructed of mud brick laid two courses wide in a thick mud mortar. This wall may be a portion of a second building that abutted the first. The contents of room was a 45 cm thick post-abandonment soil 9 very similar in character to the overlying soil 5, which lay upon mottled green/gray clayey deposit 18; a small 30 cm deep sounding into loc 18 detected four apparent surfaces. Ashy trash deposit 16 ran up to wall 12 from the north. The excavation season ended before the base of the walls could be reached. The pottery associated with the building and deposits above it includes red-washed, wipe burnished and transitional painted sherds; although none of the distinctively Amuq D types appeared in trench this pottery has a distinctively Amuq D appearance, and lacks the hallmark Amuq E types.

The bulldozer cut across the south end of the mound created a 2 m high section that runs obliquely across the mound topography indicated in the 1938 map (compare Fig. 2 with Braidwood and Braidwood 1960: Fig. 13). Three sections, 3.5-5 m wide and designated A-C from east to west, were cut back along a 30 m portion of the bulldozer cut. Section A showed 2+ m of slope wash and developed soil without reaching intact archaeological deposits. Section B indicated a similar wash and soil overburden above possible architectural collapse that covered bedded ash and hardened surfaces at 1.4-2.0 m below the section surface; section C revealed 1.6 m of slope wash above a more complexly bedded sequence of (from top to bottom) a clayey silt, a trashy soil, clayey silt, a thin ash bed, and then a third clayey silt deposit that contained a cluster of stones (architecture?).⁷ The pottery from these sections is generically prehistoric or specifically Amuq E in character, with some later materials appearing in the wash and upper levels; among the latter are examples of Karaz burnished, EBA Plain Simple, and Hellenistic painted (these periods all sporadically appear in surface collections from the same part of the site).

The excavation latrines dug on the lower northeastern skirt of the south mound offer additional views into the mound. The 1998 latrine cut again presented a 1.2 m thick deposit of slope wash and developed soil above a 10-15 cm thick ashy deposit that contained a limited amount of pottery and bone; this ashy soil covered a very stiff clayey silt that lacked artifacts. The 1999 latrine cut, located further north, lacked the ashy deposit and contained even fewer artifacts, but otherwise was similar to the first.

The work on the south mound supports three conclusions about site formation:

1. The absence of developed soil on the mound summit (Tr 1/6/9) confirms the reports of recent bulldozer activity there. But the existence of developed soil in the other excavations to the east and north imply that this disturbance was relatively limited in extent, while the Tr

⁷ Although architectural use of stone is rare at Kurdu, it does occur. The 1998 excavations found a stone footing under one wall in Tr 9 (early Amuq E) and at the entrance passage to the Tr 2 round building (Amuq E; Yener et al. in press.). Braidwood reports an irregular line of stones, interpreted as a wall foundation, from his Trench II (Amuq E; Braidwood and Braidwood 1960: 175).

13 sequence implies burial rather than removal of deposits in this direction. The topographic changes to the mound since 1938 corroborate the latter implication, with the deeply embayed western portion of the saddle being partially in-filled.

2. The extent of the Amuq E settlement on the south mound can now be estimated at 2-3 ha.

This conclusion is based on the constraint northward of probable Amuq D architecture near the surface in Tr 18, the absence so far of Amuq E occupation on the north mound, the deep mantle of slope wash around the skirts of the south mound that exaggerates its size, the depth of Amuq E deposits in Braidwood's Trench I, and the topography of the mound in Braidwood's time. Taking these factors together, the 87.5 m contour of Braidwood's map approximates the extent of the Amuq E settlement at 2 ha;⁸ allowing for additional occupation around the edges might add another hectare at most.

3. The Amuq E deposits formed a small but comparatively high mound, the steep slopes of which were subsequently moderated by erosional redeposition and the recent bulldozer activity on its summit. The excavations to date strongly suggest that this mound topography reflects Amuq E platforming and thick trash deposits. The latter appear not only around Tr 14 but also further west in the center of the mound: Braidwood reports deposits very similar to the Tr 14 bedded trash in his Trench I, where the deposits at 1.5-2.0 m below the surface "contained numerous narrowly separated gray ash lines. Some of these showed reed impressions, groups of which all ran in one direction as if the reeds had formed part of walling or flooring, but without trace of interweaving" (Braidwood and Braidwood 1960: 175).

MICROARTIFACT ANALYSIS - 1999

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It has long been recognized that macroartifacts do not necessarily represent primary room function or activity areas due to both natural and cultural formation processes (Butzer 1982: 99-100; Schiffer 1975, 1976). Even in situ artifacts may reflect partial inventories of occupation and/or the immediate pre-abandonment situation, which may not exemplify the daily use patterns of rooms (Schiffer 1985: 26-28).

Systemic analysis of microartifacts contained in floor deposits is another way to assess room function. Smaller artifacts more accurately reflect primary depositional processes in maintained activity areas since they are easily lost by their owners and are often overlooked in everyday housekeeping activities such as sweeping (McKellar 1983; Schiffer 1983: 679, 1987: 267-268). The analysis of microdebris or microartifacts, which become gradually

⁸ Braidwood indicates the summit of the south mound to be 93.3 m asl (Braidwood and Braidwood 1960 Fig. 14), and he positioned Trench I next to the cadaster. Amuq E deposits accounted for the upper 5 m of deposits in Trench I, i.e. extended to roughly 88.3 m asl, above the 87.5 m contour of the mound.

embedded within floors and occupational surfaces, may be directly indicative of room function (Rosen 1989, 1991, 1993). Furthermore, the specific types of microartifacts and their fraction sizes may reflect both cultural formation processes (e.g. regular cleaning habits, degree of trampling or discard practices) and natural formation processes such as wind or erosion (Hayden and Cannon 1983; Kirkby and Kirkby 1976: 236-238; Schiffer 1983: 679-680). Analysis of the microartifacts in multiple overlying floors can identify changes or continuities in the function of certain rooms or parts of rooms. In short, the study of microartifacts may be used (i) to obtain contextual information on activity areas, (ii) to differentiate indoor and outdoor spaces, (iii) to understand the role of cultural and natural formation processes, and (iv) to infer the accessibility of rooms through degree of trampling. Microartifact analysis can also serve as an independent check on inferences of room function made from architectural features or macroartifact distributions.

The analysis here is a pilot study to test the applicability of microarchaeological techniques at Tell Kurdu.⁹ Although it is commonly believed that such techniques are most beneficial at semi-sedentary sites or at sites where preservation of macroartifacts is rare, microarchaeology is becoming more common at mounded sites as well (Rosen 1986: 96, 1989: 564, Matthews and Postgate 1994: 171-181; Rainville: this issue). Microartifact analyses can be useful at large tell sites like Tell Kurdu where only selected contexts are fully screened with a 5 mm mesh, and most interpretation is based on the macro finds.

Methodology

The methodology employed in this study was adopted from Lynn Rainville (see the Titris report in this issue). In the 1999 season at Tell Kurdu, 37 samples taken from Amuq C and E contexts were fully analyzed. The samples selected for analysis were mostly indoor and outdoor surfaces and supra-floor deposits, although samples from trash pits, walls, fill layers and various fire installations were included (Table 1). The average sample size was 10 liters. Samples were initially wet-sieved using a 1.00 mm mesh and then allowed to dry. After having been placed through a series of four sieves (6 mm, 4 mm, 2 mm and 1 mm), the contents of each mesh size were sorted into 5 main categories (pottery, bone, lithics, shell and other items including beads, bitumen, charcoal and grinding stone fragments). The sieves mainly assisted in creating size-graded subsamples that helped avoid sorting biases. A X10 magnification was used for the identification and sorting of the small artifacts and to verify classification. Each artifact ranging from 1-15 mm in size was then measured on a millimetric scale. Fragment size per unit volume (counts for each size category per liter) was used as the main index in all calculations. This report focuses on three classes of artifacts: ceramics, bone and chipped stone.

⁹ Acknowledgments: I would like to thank A. Yener for inviting me to participate in the project and C. Edens for his assistance with excavation data. I am indebted to W. Middleton for his time and expert advice with the processing of my data. I owe many thanks to L. Rainville for her invaluable help with the methodology and her patience with my questions. I also wish to thank S. Batiuk, H. Ekstrom and H. Özbal for help with aspects of artifact processing. The samples were analyzed in the Northwestern University archaeology laboratory.

Results

Fragment size is probably the most informative attribute for making inferences about microceramics. Lack of sherds in the smaller sized fractions is usually attributed to lower intensity foot traffic (Kirkby and Kirkby 1976: 237; Rosen 1993: 147). At Kurdu, however, this situation is better explained by the interplay between the material composition of the ceramics and natural site formation processes. The distribution of Amuq C and E ceramics in the smallest (1-2 mm) size category provided significantly different results at the 0.01 level (Fig. 8). While ceramics of this size fraction appeared in all Amuq E floor samples, less than 10% of the Amuq C floor samples yielded ceramics of this size. The latter thus seem to dissolve into their constituent parts in the 1-2 mm size range, possibly because a high percentage of the Amuq E ceramics were “fired to a higher temperature than were the earlier [Amuq C] wares” (Braidwood and Braidwood 1960: 183). The resistance of Amuq E ceramics to disintegration at small sizes can be attributed to the chemical transformation and vitrification that clay minerals undergo at high temperatures (Sinopoli 1991: 30). Unless evidence for equivalent firing conditions is provided, cross-phase microceramic analyses and the direct association of public and private areas with sherd size are problematic. Larger sized bone fragments (11-15 mm) were quite rare in all samples, especially in floor samples. This might be because “most bones that are dropped on the floor are swept away or eaten by dogs and other scavengers, but small bones or fish scales as well as fragments of larger animal bones, are often trampled into the living surface” (Rosen 1991: 100). However, in both Amuq C and E contexts by far the highest counts of small (1-3 mm) bone (and in some instances small chipped stone) were found in the wall samples and some fill/trash deposits. Perhaps the secondary and tertiary nature of such deposits explains this concentration of small sized materials; the microartifacts in these contexts have been more exposed both to abrasive cultural and noncultural formation processes.

Of the materials analyzed chipped stone is the least prone to sampling biases since it is comparatively less sensitive to damage through depositional processes. Furthermore, unlike ceramic and bone microartifacts, lithic debris provides the most accurate evidence for craft production (Fladmark 1982).

Depositional Contexts

In two Amuq E areas room function could be inferred from non-portable artifacts (as opposed to macroartifacts), but in the Amuq C area no functional designation beyond ‘large architectural complex’ was possible through these means. In the Amuq C case microartifacts provide a method to identify room functions that were otherwise invisible. The functionally identifiable areas in the Amuq E case include (i) the Tr 11 phase 1 kiln complex, and (ii) the Tr 14 room with bread ovens. In such situations, microartifact studies can illuminate differences between actual and intended uses of space and serve as an independent check on such inferences.

Amuq E: The Tr 11/15 The Kiln Complex

Five samples were collected from Tr 11, three from the interior floor 11:14, of which two were corner samples and the third a center), one from the exterior surface 11:15, and one from inside kiln 4 (Fig. 9; see Fig. 3). The workshop area appears to have been swept regularly and thoroughly (including corner areas). The careful maintenance of the interior area accentuates the stark difference between the interior and exterior surfaces. All types of artifacts are consistently three to five times more abundant in the exterior area. Such a differentiation should be expected based on ethnoarchaeological studies (Kramer 1982: 90, 1979: 149). As the exterior sample contained high densities of artifacts in a full range of sizes, it likely was derived from a trampled but yet trash-filled passageway. The elongated shape of surface 11:15, which traverses the trench from east to west is also indicative of such a passage. Unlike the interior and exterior floor samples from this area where foot traffic was high, the untrampled kiln sample yielded no materials in the 1-2 mm category, with the exception of small amounts of chipped stone, a material less prone to size reduction through trampling. This confirms that trampled floor surfaces, both indoors and outdoors, will be relatively rich in small artifacts (Kirkby and Kirkby 1976).

Amuq E: The Tr 14 The Bread/Food Preparation Area

Five microarchaeological samples were taken from the 'bread/food preparation' room of Tr 14. Three of these were from different parts of the accretion surface 15 (threshold, center and southwest corner). The other two include a sample of oven-debris (ash deposit 12) as well as a sample taken from the low partitioning wall 32 between the two ovens (Fig. 10; see Fig. 5a).

Analysis of microdebris showed that this room was a multi-purpose area, more poorly maintained than the ceramic workshop. In addition to baking bread and preparing food, the microdebris results indicate that stone bead making, shell working and flint knapping had also taken place here. Seventy-two percent of all the beads from the 37 microdebris samples were contained within the three samples from surface 15. In fact, five of the thirteen beads (38%) from this room have rough, cornered, and still sharp edges, which suggest that this was a primary bead manufacturing area (Kenoyer et al. 1991). Shell working may also have taken place here. While all other Amuq C and E samples yielded at most one or two pieces of marine shell, two of the floor samples from this room alone yielded 27 fragments, of which at least one has clearly been worked. Both the quantitative difference and the presence of worked shell fragments suggest that shell ornaments may have been manufactured in this room. The sample taken from the southwestern corner yielded numerous flakes from the same distinct yellowish brown flint (nearly half lithics from sample), including cortical flakes, which suggest primary reduction rather than tool sharpening. Several pieces of this yellowish flint were also noted among flakes from samples from the center of the room and from the threshold area to the east. The presence of hazardous materials like flint and obsidian debitage suggests that the maintenance of this room was not a high priority. As noted by Simms and Heath, "the

household activity area [is] in some instances ‘dirtier’ than the secondary refuse deposits” (1990: 805).

In addition, pottery of all sizes is heavily concentrated in the sample from the southwestern corner of the room, while most of the bone, especially of the small sizes, is concentrated in the threshold area (four times more than the other floor areas). Although heavy concentrations of microdebris in entryways may be attributed to sweeping (Metcalf and Heath 1990: 792), in this case it does not answer why bone only, and not other lithic, ceramic or shell remains, is abundant in this area. Since more than half of this bone concentration is relatively small and light (less than 3 mm in size), this material was probably brought in, from the adjacent trash area rich in faunal remains, by natural agents such as wind, known to size-sort particles (Schiffer 1987: 268-269).

Amuq C: The Tr 12/16 Large Architectural Complex

Twenty seven Amuq C samples were obtained from Tr 12/16. The samples include ten floor deposits taken from five indoor and outdoor surfaces, six supra-floor deposits taken immediately above these floors, six fill or trash deposits, three wall samples, one hearth sample and one sample of a basin interior (Table 1; see Fig. 6).

The samples from fill/trash 12:8, 12:22, 12:50 and 16:13 are the richest in overall quantity of material in most size fractions for the artifact categories represented. Even though some degree of natural size sorting processes probably take place among trash, one still expects the highest and the most random mixture of sizes to appear in such deposits. The samples from pisé wall 12:16 were also quite rich in material (with the exception of shell), but were more size sorted than the trash samples, yielding much higher concentrations of small materials, especially bone (Fig 11). The sample material reflects the parent, organic-rich trash deposit from which the soil was dug to make the pisé. Such tertiary deposit materials, exposed to a wide array of abrasive natural and cultural formation processes, typically contain high numbers of small sized fractions (Schiffer 1987: 267-269).

Although several outdoor samples were collected, time constraints in analysis permitted only one Amuq C outdoor sample to be fully analyzed. This sample was taken from the area outside the compound close to the south face of wall 12:15 (Fig. 11). Results show that the sample was persistently higher in large microartifacts (4-15 mm) of the four types represented than all other Amuq C samples. With such high concentrations of large materials and relatively few small ones, this outdoor sample is different from the one taken outside the ceramic workshop in Tr 11. While the latter, high in all sizes of microartifacts, possibly represents a heavily trampled passageway, the former was taken from an area much closer to a wall that presumably received less traffic.

Nine samples were taken from floors 12:17, 12:28, 12:52, 16:28, and 16:32. Of these four floors, two were mud plastered while the remaining three were packed earth surfaces. This distinction appears to be significant. Two samples were taken from adjacent quadrants in each of the two superimposed plastered floors 12:28 and 12:52). The microartifacts from these four samples are each markedly different in artifact densities and fragment size distributions from

one another, thus showing no continuity across space or time. Such high variation among closely clustered samples is probably because this random mixture of microartifacts was already present in the mud-plaster used in floor construction. These artifacts thus should not be used to infer room function. The recovery of a complete human adult metatarsal bone, clearly not occupational debris, from the upper plaster confirmed this inference. Moreover, portions of reed matting were identified in the center part of this room (loc 31), overlying the uppermost plaster floor; the use of mats would have inhibited microartifacts and other particles from penetrating the plaster (Matthews and Postgate 1994: 190).

Microartifacts are more likely to be characteristic of the activities that took place on two packed earth floors 16:28 and 16:32, which had no evidence of matting or plastering. Two samples taken from each of the adjacent rooms indicate that these rooms were functionally distinct. The southern room may have had an offset entrance on its southwest side (loc 12:47), while the northern room probably had no doorways. One would expect the more accessible southern room to have smaller sized sherds due to heavier foot traffic. Indeed, this room did yield higher quantities of small (1-2 mm) microceramics and bone than the northern one as well as all other indoor Amuq C surfaces (Fig. 12). The northern room, by contrast, yielded the largest ceramics recovered from all Amuq C indoor floor surfaces. The latter room's relatively small size, central position, and lack of trampling, suggest it was probably used as a storage area. Chipped stone tool manufacture appears to have been practiced in the southern, more accessible room since lithics of all sizes are 2-3 times more prevalent here than any other surface (including the lithic concentration in the Tr 14 building) (Fig. 13). As in the Tr 14 building, cortical flakes are present suggesting that this was also a primary reduction area.

Conclusion

Several conclusions are suggested by this pilot study. First, small-sized ceramic fractions may not always be correlated with trampling since other factors such as material composition or depositional process can bias samples as well. For ceramics, firing technology has demonstrable effects on fracture size. Bone size, on the other hand, is highly affected by various abrasive formation processes. Perhaps these biasing factors can explain why in many instances artifact distributions are more related to depositional context than to identifiable room functions.

Secondly, although built installations may provide stereotypical designations for room function, these designations often overlook the multi-functionality and changeability of space (Bailey 1990: 21-22). Microarchaeology is important because it can provide evidence for more ephemeral activities that lack architectural correlates (such as ovens, kilns and other fire installations). This was illustrated most clearly in the room identified as a 'bread/food preparation' area, but clearly used for other tasks such as shell working, bead making and lithic tool production. It must be noted that before these inferred activities can be designated as practices, as opposed to incidental events, samples from overlapping multiple floors should be analyzed. Only then can consistent practices be differentiated from intermittent events. Overall, this pilot study demonstrates that microarchaeological analyses can provide a useful

complement to the study of architecture and macroartifact distributions as a way to reconstruct ancient intra-site activity.

PYROTECHNIC INSTALLATIONS

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The past several seasons of excavation at Tell Kurdu have produced a large number of pyrotechnic installations, dating to all phases of occupation at the site (Amuq C-E). The numerous installations exhibit a remarkable variability in design, physical characteristics such as hardness and composition, and location within the site in relation to other architectural features. While some of the differences among the installations may be a result of the generally non-standard designs frequently employed in pyrotechnic facilities, it is very likely that many of the strikingly disparate qualities are the product of differing functions. While pyrotechnic installations are commonly encountered in excavations of ancient settlements, they generally are not systematically analyzed or categorically reported, with some notable exceptions including Abu Salabikh (Crawford 1981) and Tell Abada (Jasim 1985). Accordingly, there is very limited comparative archaeological material from the ancient Near East, and even less methodological precedent for the study thereof. The result has been that even when installations are reported, they are often described as “kilns”, “ovens” or “hearths,” without supportive contextual and quantitative evidence for such functionally loaded terms. It is our hope that a thorough formal and contextual analysis, combined with a forthcoming quantitative analysis of the composition and firing temperatures of the installations, will allow their respective types and functions to be more convincingly established, and provide the basis for a better understanding of the organization of production and use of space at Tell Kurdu.

Kilns

Several pyrotechnic installations have been found at Tell Kurdu which we regard as ceramic kilns. All were found in Tr 11/15, which appears to have been a ceramic production area. Four installations excavated in Tr 11 form part of an orthogonally planned work area (kilns 4, 6, 7 and 8), an area that also includes two pits and a partial perimeter wall (see Fig. 3). The pyrotechnic installations themselves are not well preserved, as all have been truncated by the plowzone. No superstructures are extant on any of the installations, prohibiting an analysis of the kiln types represented. However, the size and character of the floors and wall stubs of the installations are consistent with several types of single and double chamber kilns such as those found at Tell Abada (Jasim 1985). The best evidence that the installations indeed functioned as kilns comes from the fact that much of their wall and floor material has been completely vitrified into ceramic slag. This suggests the installations in Tr 11 are kilns because the heat required to vitrify clay far exceeds the temperature achieved in any cooking or household heating installation. Large numbers of overfired potsherds were found in the immediate vicinity of the installations, which is one of the best indicators of ceramic

production (Moorey 1994: 144). The remains of several other features that are similar to the kilns in color and composition were found in Tr 15 (notably installation 3). Unfortunately, they are too extensively damaged by plowing and erosion to provide any more than a suggestion that the ceramic workshop was originally more extensive or longer lived than the coherent phase 1 features demonstrate.

All of the kilns are constructed of highly chaff-tempered clay, which preserves impressions of both straw, and much larger reed material. In some cases it appears that reeds have been laid horizontally and surrounded by packed mud and clay to form the floor and walls of the installations. While all four kilns are contemporary, none are formally the same, suggesting some functional variability among them. Kilns 4 and 6 have extremely hard floors and walls, with much of the construction material completely vitrified, while kilns 7 and 8 are much softer and contain only very small fragments of ceramic slag. This is likely due to the different firing temperatures utilized to produce different kinds of pottery. Kilns 4 and 6, very similar in form and hardness, are remarkably different when viewed in section. Kiln 4 is dark, charcoal black, while kiln 6 is bright orangish-red, suggesting that different kilns may have been used for different oxidizing and reducing firing atmospheres. It is our hope that analysis of the firing temperatures attained within the kilns and of the composition of the construction material will allow the differences among the kilns to be quantitatively demonstrated.

The sherd assemblage from floor 14 inside the workshop includes a wide variety of vessel types; as many are burned or overfired, this assemblage likely represents the range of ceramics being produced. The sherds from within the workshop include coarse cooking wares as well as fine painted pottery, indicating that both were being produced in the same area. The distribution of the floor assemblage, collected in a one meter grid, appears to show a non-random pattern that may further imply which kilns were used for firing what types of pottery. Cumulatively, the qualitative and potentially quantitative differences among the kilns themselves, the pottery types found in the workshop, and the spatial distribution of the sherds all suggest that many different kinds of pottery were being produced at one workshop.

An early 5th millennium ceramic workshop is a highly significant discovery because it implies the presence of specialized potters, producing ceramics in quantities far exceeding their own personal or household needs. Workshop production is differentiated from household production in that the products of a workshop are manufactured for exchange, while household production is only intended to meet the needs of an immediate community (van der Leeuw 1984). The craft specialization associated with workshop production has also been closely tied to political development (Peregrine 1991). While earlier studies have suggested that ceramic production at Tell Kurdu was probably characterized by “community specialization” (Gerritsen 1994),¹⁰ the ceramic workshop provides the first concrete evidence for specialized

¹⁰ Based on a study of Amuq E sherds from Braidwood’s excavation of Tell Kurdu, Gerritsen (1994) suggests that ceramics were produced at the site by specialists, perhaps in a workshop setting. Following Costin’s (1991) typology of craft specialization, Gerritsen feels that “community specialization” was the most likely mode of production, although recognizes that the evidence from Braidwood’s excavation alone is inconclusive. The workshop from Tr 11 provides a clear resolution to the issue, demonstrating the presence of specialized workshops.

pottery. It is within this framework of specialized production and exchange that the critical social and political developments of the Chalcolithic Amuq can begin to be analyzed.

Direct archaeological evidence for an advanced level of craft specialization is extremely rare at any Ubaid-related site. Most sites which have produced kilns dating to the Middle Chalcolithic or earlier, such as Tell Sabi Abyad (Akkermans and Verhoeven 1995) or Tell Oueili (Huot 1996), have only isolated pyrotechnic installations. Even at Yarim Tepe II, where large numbers of pyrotechnic installations were found, there was no distinct, separate workshop area (Merpert and Munchaev 1993). The only other contemporary site to yield evidence of a concentrated area of ceramic production is Tell Abada Level I (Jasim 1985: Fig. 25), where excavators found on the eastern slope of the mound an enclosed area containing four kilns. Many other installations from the same level are also reported as kilns, leading Jasim (1989) to suggest that the site functioned as a central pottery production site in the Hamrin region. But the installations described as kilns have not been critically analyzed, and some authors find doubtful the function assigned to many installations (Moorey 1994: 144). In any case, the pattern at Tell Abada appears very similar to that at Tell Kurdu, characterized by at least one enclosed area on the eastern slope of the mound containing several different kilns. Further excavations in this area at Tell Kurdu will provide a broader context for the workshop, as well as earlier phases of use of the same area.

Ovens

Ovens and hearths generally receive even less attention than do pottery kilns. However, the Early Dynastic IIIa levels at Tell Abu Salabikh produced a large number of pyrotechnic installations which, while later in date than the installations at Tell Kurdu, provide a useful model for the categorical division of ovens and hearths. Crawford (1981) distinguishes two main types of ovens: open hearths, and tandurs or domed bread ovens. Both these types are represented at Tell Kurdu. One open hearth (oven 24) with built walls and rectilinear shape was uncovered in phase 2 of Tr 11. The hearth was found with several whole ceramic vessels resting upon it and on the adjacent floor. A large rectangular grinding stone and a bone awl were also found on the same floor, similar to installations at Tell Abu Salabikh. Crawford (1981: 108) suggests a domestic function, probably cooking, which seems to be born out at Tell Kurdu by the associated artifacts.

Nearby, in the same phase, two other installations of a type not represented at Tell Abada or Tell Abu Salabikh were found. The two features both have hard-baked, curvilinear firing chambers and clay-lined floors which show a build-up of burned layers (2:8 and 11:25). The most distinctive feature of the two installations are vertically placed grinding stones set within the walls of the firing chamber. As neither the exterior walls nor the superstructure of either installation is preserved, little more can be said regarding their function.

Several tandur-style bread ovens have also been found at Tell Kurdu, representing both re-enforced and freestanding types. By far the best preserved of these come from Tr 14 in Amuq E contexts. The first architectural phase encountered revealed a small room containing at least two tandurs (Fig. 5a), and possibly a third (loc. 16; Pl. 1), free-standing tandurs. Ovens

14:13 and 14:18/21 are virtually identical in construction, built in two elliptical halves, one above ground, the other partially sunken. The walls of the preserved superstructures are a slight 3-4 cm thick. The westernmost of the two installations has a preserved rim, indicating a oval opening on the top of the dome which would have contained the firing chamber. Two of the Tr 14 ovens were in use at the same time, implying that the room functioned as a bakery. This also follows the pattern at Abu Salabikh, where tandurs are typically found in groups inside rooms (Crawford 1981).

On other parts of Tell Kurdu, where much of the upper stratigraphy has been highly bioturbated, features are rarely as well preserved. However, in several locations pyrotechnic installations have been found which most likely represent the base of similar tandurs. Two such installations have been found, oven 6 from Tr 18 and oven 18 in Tr 4. Both of these features are elliptical in shape, similar to tandurs, and are constructed of fire hardened clay. The installation in Tr 4 is actually built on top of a paving of thick sherds. Unfortunately, neither of these installations was found within any architectural context and so little more can be said of them.

In Tr 15, the phase 2 oven 15:7 possessed an elliptical, domed firing chamber like the tandurs in Tr 14. However, unlike those ovens, there is no opening visible on the top of the chamber, nor are the walls of the installation free-standing, but rather are contained within a large, poorly-preserved bench, similar to the re-enforced ovens at Abu Salabikh. Immediately adjacent to the excavated installation, there is another domed firing chamber which remains unexcavated (oven 21). Also unlike the tandurs in Tr 14, the ovens are located in an outdoor courtyard area, which appears to have been used for pyrotechnic installations for many years, attested by the long sequence of burned deposits encountered in the 1996 sounding. In a later phase, the same area is used as the ceramic production area, indicating that many different kinds of pyrotechnic installations were concentrated in this part of the site. The location and concentration of installations is most reasonably explained by the prevailing westerly summer winds, which would have blown smoke and ash away from the main area of settlement on top of the mound.

It is our plan to follow this brief report of the pyrotechnic installations at Tell Kurdu with a systematic, quantitative analysis aimed at determining: 1) the composition of the construction material used in each installation, and 2) the maximum firing temperature attained in each. It is our hope that this data will corroborate the above assignment of installations to functional categories, suggest possible functions for enigmatic installations, and provide a basis for analysis of installations found in future years at Tell Kurdu and elsewhere.

PRELIMINARY REPORT ON THE CERAMIC ASSEMBLAGE AT TELL KURDU Benjamin H. Diebold (Yale University)

The ceramic assemblage at Tell Kurdu lies at a critical juncture in the development of early complex societies in southeastern Turkey. Comprised of material relating to Amuq C, D and E, the occupation at Tell Kurdu spans the transition from local late Halaf-related

cultures to regionally integrated early northern Ubaid-related cultures in the Amuq plain. Preliminary results have already been published of the pottery recovered in the 1998 excavation season (Yener et al. in press); this brief report will focus on some results of the 1999 season.¹¹

Processing Methods

Altogether over 600 bags of pottery were recovered in the last season, representing around two metric tons of material. All body sherds have been kept, to serve as the basis for more detailed fabric studies in the future. Excavators were therefore asked to rank the quality of their excavated loci on a scale of 1 to 4 (cf. Algaze, 1990: 213 for a similar approach). A ranking of 1 indicates that the locus was a primary deposit or a short-term accumulation, such as a burial or a destruction layer. A ranking of 2 suggests that the locus was possibly a secondary deposit, though of short term accumulation, as for example a seasonally deposited small midden or pit. Long-term ancient accumulations are represented by a ranking of 3 (for example, mudbrick collapse), while ancient-modern mixing/contaminated loci were given a rank of 4. Excavators qualitatively assessed the material so that the ceramic analyst could easily restrict analysis to the most productive loci. Consequently only loci of ranks 1 and 2 provide the basis for the data in this report; data from loci with quality rankings of 3 and 4 are not incorporated.

Analysis then proceeded along several lines. Lots of ranks 1 and 2 were sorted and counted into 4 general categories:

category I: plain wares, body sherds;

category II: plain wares, diagnostic forms (rims, bases, handles, etc.);

category III: decorated wares, body sherds (painted or burnished body sherds);

category IV: decorated wares, diagnostic forms.

These results are displayed in Table 2.

Some preliminary data were also kept relating to very general form classes and decoration patterns. These data are presented in Table 3 simply to suggest basic patterns. In the following, jars were simply defined as closed forms with perceptible necks, pots as closed forms without perceptible necks, and bowls as open forms.

Additionally, several hundred sherds were recorded individually by measured drawings, and informal observations were logged at the time of study (Figs. 14-15). Finally, samples of over 200 sherds were retrieved for paste composition studies, which will include both NAA and thin-section analysis. These sherds will also form the basis for a more fully developed fabric typology. Derived from an analysis of a number of fabric attributes, this method is similar to work being performed at Domuztepe (Campbell et al, 1999).

¹¹ While all the students from MKU deserve great credit for their hard work this summer, Dilem Karakose deserves particular notice for spending many hours every afternoon, on her days off, and after excavations had ended, diligently coding ceramics. Her contributions materially improved efforts at ceramic analysis this year.

To supplement the Braidwood excavation report, a more fully rounded typology is being developed that will encompass both wares and forms. These efforts are ongoing, but it is worth noting that while a serious effort was made to come to the assemblage fresh, the preliminary ware typology is converging on that presented by the Braidwoods very closely. At the same time, these wares are represented at different frequencies than those found in the Braidwood analysis and the forms and styles of decoration encourage further analysis.

Results

While a number of new trenches were opened this year, the best-stratified pottery came from operations 11/15 (east lobe, adjacent to trench 2 excavated in 1998), 12/16 (north mound), and 14 (the step trench). Trench 13 yielded many interesting specimens typologically, but lacked stratigraphic quality, as did the other soundings (except for trench 18, opened in the last week of excavation).

Trenches 11/15

The pottery, mostly taken from contexts surrounding a workshop area, was phase E related. Adjacent to Trench 2, excavated in 1998, this operation produced large quantities of a few standard types. Ubaid-like monochrome (ULM) wares predominated, especially medium and coarser varieties (described below), though small amounts of a clinky variety were uncovered also. As a part of the medium ULM wares, jars with relatively straight necks were accompanied by a number of painted bowls and goblets (Fig. 14: 1-2; Excavations, figs 146-149). Often, these jars had handles and were loosely painted with bands and swags around the neck and shoulder. Bowls and cups with sinuous sides or bell-shaped profiles were relatively frequent, and nearly all the bichrome recovered this season was in these forms and from this trench (cf. Excavations, Fig. 202). While the heavier jars with relatively straight necks and slightly rounded, slightly out-turned lips were the most common jar form, a number of low-collared jars or pots also appeared. These jars have good parallels with those that appear in the Rouj Basin in Tell el-Aziz levels 5-8 (Iwasaki et al, 1995: Fig. 22: 9).

By far the dominant motif was a multiple brush wavy line style of decoration (Fig. 14: 1; Excavations: Fig. 144), though bands and swags also appeared frequently. Other motifs include zig-zags, cross-hatching, and running lozenges, with and without hatching (cf. Excavations: figs. 147-148; Fig. 14: 2, 3). A few instances of burnishing appeared (Fig. 14: 14-15, 18), representing about 7% of the total trench 11/15 assemblage (see Table 3). That figure is exactly in line with the 5-9% frequency of DFBW in phase E suggested by the Braidwoods (Excavations, p. 177). However, only 28% of the total sherd assemblage (by count, not weight) was painted, in contrast to the approximately 75% frequency indicated in the Braidwood report (Excavations, p. 181). That figure rises to 45% when only rim sherds are included in the sample (probably due to a relatively open painting style in which bands around rims were ubiquitous; see Table 4 below). Comparable frequency data are not available from many other areas, though Hammam et-Turkman had 17.6% painted rim sherds for phase IVA

and 13.4% in phase B (Akkermans 1988: 198). A total of 10.4% painted rim sherds was recorded for all of phase IV at Hammam et-Turkman (Akkermans, 1988: 198). Hammam IVA is probably the best match for Kurdu's phase E in the Hammam sequence, though stronger parallels can be seen at Khosak Shamali, sector A levels 13-17 (Nishiaki et al. 1999) and Ras Shamra IIIB (cf. Edens and Yener in Yener, et al., 1999, for additional discussion). The differences between the phase E assemblage at Tell Kurdu (especially that in trench 11/15) and any phase at Hammam including IVA may be due to regional variation, a gap in the sequence at Hammam, or both. The parallels at Khosak Shamali (a site on the east bank of the Euphrates relatively near Hammam et-Turkman) raise the possibility of a gap in the Hammam sequence.

The presence of reasonable quantities of an Ubaid bichrome was a characteristic of the ceramics in trench 11/15 (Fig. 14: 3 and 4). A similar collection was found in neighboring trench 2 in the 1998 excavations. Unfortunately, frequency data for bichrome are not yet available. The bichrome found at Kurdu varied in quality, with the best quality coming on finer sinuous sided cups or bowls, often on a white slip and with designs carefully outlined with thin, black lines (Fig. 14: 3). The lesser quality bichrome used broad strokes on untreated surfaces, with the colored paint barely constrained (or not at all) by rough black outlines. This second variety of bichrome was generally found on orange fabrics (which the first never was), and often shaped into globular jars with ring bases. As noted in the prior report on the pottery from trench 2 (Edens and Yener in Yener et al, in press), best parallels are with Ras Shamra IIIB/IIIC, Kosak Shamali, sector A, levels 12-10 (eg. compare Nishiaki et al, 1999: Fig. 11, no. 2 and this report, Fig. 14: 3), and layer A of the Sakcegozu Cave (French and Summers, 1988: figure 6, nos. 1-2). The Braidwoods suggest that the finer bichrome, particularly that with the white slip, comes earlier (Excavations: p. 201). If the material in trench 11/15 postdates that of trench 14, as we now suspect, and there is a bichrome tradition in phase D (suggested in the Braidwood report [Excavations, p. 167] but not presently uncovered by us) the possibility exists of either separate bichrome traditions, or of two modes in the popularity of a single bichrome ware. Our data are as yet unable to resolve this problem.

Finally, the phase E plain wares came in three basic varieties. The first was a simple ware, or an unpainted variant of the Ubaid-Like Monochrome (ULM) wares. These were either simple pinch rim jars or round-rim incurved bowls (Fig. 14: 5), constructed from well-fired, sand-tempered pastes. The second variant was a much heavier form of a similar, well-oxidized, sand-tempered ware for large jars and basins. Finally, the cooking plain wares (weakly represented in trench 11/15, though frequency data are currently not available; see Fig. 14: 7) were what the Braidwoods have described as "New Cooking Ware" (cf. Excavations, p. 178 and Fig. 139), or simple, neckless, closed forms, in brownish, incompletely oxidized pastes, often slipped, with moderate to heavy mineral (and occasionally shell) inclusions (Fig. 1: 7). Very often these pots had slightly beaded or flattened lips. While the Braidwoods described a transitional sequence between phase C and phase E cooking wares, as presently excavated these appear to represent unrelated traditions. As more of phase D is exposed, this picture may change.

One last piece from trench 11/15 deserves mention. A few fragments of a single double-mouthed jar were recovered (Fig. 14: 6). Only the one specimen appeared in this

season's excavation, and none have been reported earlier. It seems likely this piece represents a connection with sites further to the east, where double-mouthed jars appear more frequently (as in the middle Khabur at Tell Ziyada and Tell Mashnaqa, seen in collections at Yale University).

Trench 14

The step trench ran down an exposed section (probably trimmed by a bulldozer) on the east side of the mound. This operation produced pottery that had phase E, Ubaid-like, affinities. However, this group differed from that excavated in trench 11/15 (and trench 2, excavated in 1998), more closely resembling the assemblage recovered from trenches 1, 6 and 9 in 1998. Given the specialized nature of the deposits in trench 11/15, functional differences between trenches 14 (which has a domestic cast) and 11/15 must be a factor in explaining variations in the assemblage. However, it also seems likely that trench 11/15 differs chronologically from all levels of trench 14 presently excavated. Stratigraphic considerations suggest that these ceramics are earlier than those from trench 11/15. The assemblages from these trenches, then, may serve as a basis for a preliminary subdivision of phase E at Tell Kurdu, to be explored in future work. While several phases in trench 14 are distinguished archaeologically, the ceramics recovered from them so far do not suggest much time depth is involved. The dominant component of the assemblage were masses of very finely made, well-decorated ULM in association with a series of domestic structures, much like trench 1/6/9 from the 1998 season. The execution of the designs and the quality of the fabrics were noticeably higher than those from trench 11/15. Also significantly, the amount of bichrome dropped dramatically. Most common forms included finely made small cups and bowls with designs of lines, checks, hatches, and ladders in controlled geometric patterns, and a number of miniatures, generally undecorated (Fig. 14: 13-14, 18-19). There were a series of distinctive cooking wares (Fig. 14: 8-9, including one in a thin, bright orange, incompletely oxidized ware tempered with varicolor grit. This ware is identical to that used in a burial vessel dug into trench 18, which itself is similar in form and decoration to a group of pots found in a series of burials in the north lobe of the mound last season (Yener *et al*, in press). Parallels are strongest with Hammam IVA and IVB, though the frequency of painting is considerably higher at Tell Kurdu (ca. 45% of rim sherds at Tell Kurdu, compared with no more than 18% at Hammam et-Turkman; cf. Table 4).

Where the trench 11/15 ceramics included many straight-necked jars characteristically decorated with bands and swags, sinuous-sided bowls and cups in both plain and bichrome wares, and bowls with multiple-brush wavy line designs, the trench 14 pottery had more thin-walled and smaller-sized bowls and pots, and fewer jars, especially of the varieties found in trench 11/15. Many designs are congruent with those from Hammam IVA and Gawra XV-XVII (Tobler, 1950). One striking piece was a very large bowl in a hard, orange, sand-tempered ware decorated in the multiple brush wavy line pattern so common during phase E at Tell Kurdu (Fig. 14: 15).

Trenches 12/16

Of the three major operations opened in the last season that yielded fairly stratified samples, trench 12/16 on the north side of Tell Kurdu produced the earliest assemblage, corresponding with Amuq phase C-D. This group probably represents a late Halaf-related culture with a very strong local component. As suggested in the Braidwood report, the characteristic Amuq DFBW was common in this phase, though not so common as its unburnished counterpart. Where the Braidwoods suggest that 35-40% of the phase C assemblage was DFBW (Excavations, p: 138), our findings indicate that only 27% of rims were burnished, and only 14% of the total sherd bulk (including body sherds).

Best parallels here lie with Ras Shamra IVC/IVB and the Rouj Basin (Iwasaki et al, 1995; Tsuneki and Iwasaki, 1996; Tsukneki et al, 1998). Of special note are the carinated bowls with reddish paint on the interior edge (Fig. 15: 1-2; compare with de Contenson, 1992: figure 189, nos. 5-10), which are what the Braidwoods call "local painted", or possibly Halaf (Excavations, p: 145-148, though they do not illustrate any of this description; see also similar forms from the Qoueiq [Mellaart, in Matthers, 1981: 220, nos. 283, 285]). These painted carinated bowls in a creamy paste have a nice counterpoint in a series of carinated bowls made in a DFBW, with burnished interior lips and occasionally exterior edges also (Fig. 15: 3 and 4). These DFBW carinated bowls present an interesting conjunction of a regionally popular form made in a local ware and decorated in a distinctly local style. Also of note are fragments of at least two fenestrated pedestals (Fig. 15: 26), which were strikingly similar to those from Ras Shamra IVB (de Contenson, 1992: Fig. 201). Parallels with the important Hammam sequence are not striking, though certainly some generic Halaf-related elements obtain, including carinated bowls with bucrania (generally highly stylized, indicating a late horizon), and a body sherd in a Halaf style, finely levigated, well-fired creamy paste with very lustrous red paint decorated with a group of dotted circles (Fig. 15: 25; compare with Akkermans in van Loon (ed.), 1988: plate 18: 144). For this last example, excellent parallels can also be found in the Halaf period excavations at Umm Qseir, in the middle Khabur of northeastern Syria (Yale University collections), and at a variety of classic Halaf sites.

But this sherd is anomalous in this assemblage (it is very likely an imported item), which is dominated by dark-faced unburnished cooking wares. These cooking wares, which are described by Braidwood as the second variant in the dark faced unburnished ware group (and are very accurately characterized in that volume), were very common (Excavations, p. 141-142). They appeared in a limited variety of forms, chiefly pots or bowls with internally thickened rims (most commonly, especially pots or holemouth vessels; Fig. 15: 19-24), and high-necked jars (much less commonly; Fig. 15: 11). These pots often had exceptionally thin walls, down to as little as 4mm thick which is striking for such an otherwise coarse, rough-textured ware. This cooking ware appears at this juncture to be a relatively local product, both in form and ware (though some examples may exist in the Rouj Basin), and does not survive phase C (or phase D at the latest).

The other major group of ceramics among the trench 12/16 assemblage was dark-faced burnished ware. A very heterogenous group (some of the difficulties of which are described

below), the DFBW in trench 12/16 nevertheless had a few meaningful conjunctions of form and decoration. First, there were a group of very fine, thin-walled jars with an extremely lustrous, nearly laquer-like finish, always in black (Fig. 15: 6-9). Second, there a number of bowls, sometimes incurved, and generally more roughly treated with a streakier, brown burnish (Fig. 15: 12-15). Finally, there were a series of larger forms, including basins and a very large, heavy storage jar; these were occasionally very highly polished, and must have represented very significant investments in labor. Again, good parallels can be found at Ras Shamra IVC and in the Rouj Basin (Iwasaki et al, 1995).

A glimpse at phase D may have been available in several post-occupation pits cut into structures in trench 12. One of these pits was quite large, and contained a rich assortment of very fine painted corrugated ceramics, beautifully executed and intricately painted monochrome wares (which differed in form, ware and decoration from the later Ubaid monochrome wares in trenches 11/15 and 14), and a variety of burnished wares, included a significantly greater number of reddish burnished wares which were probably analogous to the Braidwood's "wiped burnish ware" category. Several fine bow-rim jars appeared in this assemblage (Fig. 15: 16), which the Braidwoods proposed as a marker for phase D (Excavations, p. 159). Consequently, we suggest this pit is a phase D pit cut into an earlier phase C occupation, during a time when occupation at Tell Kurdu did not persist on the north lobe. Despite the presence of the monochrome painted wares in this pit, phase D as presently understood has strong affinities with phase C, particularly in light of the burnished wares and cooking wares. It does not with phase E since even the monochrome painted wares differ in form and execution, and the cooking, burnished and corrugated wares found in phase D so far are not evident in phase E.

Discussion

No consideration of pottery from a site in the Amuq can begin without reference to the work of the Braidwoods. One finding of this year's work is that in nearly every detail related to *description* of ceramic wares and properties, the Braidwood volume is difficult to improve upon. Where the Braidwood volume can usefully be supplemented is in consideration of ware *frequencies*, and the more explicit consideration of form and decoration (as they themselves suggested; cf. Excavations, p. 28-29). Additionally, it seems probable that several very large and heterogenous ware categories, notably Dark-Faced Burnished Ware (DFBW) and Ubaid-like Monochrome (ULM) will be amenable to subdivision. In particular, preliminarily we recognize four varieties of ULM. The first is a thin, fine, clinky, well-fired ware, generally carefully painted with lines, bands and occasionally the multiple brush wavy line motif so typical of phase E at Kurdu. This ware is typically 4-5 mm thick, lightly sand tempered (if at all), and is a light beige-buff color, though often reddish as well, and is only rarely slipped or self-slipped. Classic over-fired greenish fabrics typical of the Ubaid further east and south are rare in this group, appearing more often in a heavier, granular variety though never very frequently. The second group is a thicker variety of the first. It appears to be less frequent, possibly because it shatters less in which case collection of weight data will be important.

Painting on this variety of ULM shares the same basic design patterns, but is generally more coarsely executed. The third variety of ULM is a coarse red ware, often heavily tempered with small white grits which may be limestone. It is fully oxidized, occasionally with chaff added. This ware is generally employed for larger, heavier vessels, such as heavy open bowls with loosely executed painted motifs. However, a number of miniature jars were also found in this fabric. Finally, there is a group of sherds with ULM designs in a fabric with medium to heavy sand-tempering resulting in a granular feel to the surface. These are generally thicker (7-9 mm), heavier, and fairly hard. They tend to be fully oxidized, and painted in a relatively loose style, almost always in the typical multiple brush wavy line style. This group often has a fine bright self slip, ranging from pink to yellow, sometimes on the same sherd (for which reason early efforts to subdivide on this group were abandoned).

At present, DFBW has been less amenable to consistent subdivision, and will be a focus of future research. Similar efforts are underway in the Rouj Basin (Miyake, in Tsuneki et al, 1998; p. 12). While it may be possible to separate on the basis of color (red burnish from black, for example) a number of sherds have appeared with both colors, both on the same surface and on interior and exterior surfaces. Additionally, several striking examples have made it clear that sherd color can be changed by post-depositional processes, which we discovered when fitting a red sherd to a black one. A better strategy may be to divide on the basis of burnish quality, which ranges from a few strokes to a lacquer-like polish or on fabric characteristics. While burnish quality is also affected by post-depositional processes, it is still more likely to produce a consistently meaningful division.

Conclusions

Preliminary results are that the 1999 excavation season material potentially represents a distinct shift from a late (or even post) Halaf-related local culture to a northern Ubaid culture. The local culture's distinctive cooking wares, dark-faced burnished wares, and very occasional painted wares were replaced by the monochrome painted wares in several recognizable flavors representative of the northern Ubaid, in addition to a new style of cooking ware. While the Braidwood findings suggest that transitional layers may exist deeper in the mound, as currently excavated a smooth transition is not evident, particularly in the cooking wares. It also appears that the phase E component of Tell Kurdu is more strongly related to a large, regional interaction sphere than is the phase C/D component. Halaf influence on the Kurdu pottery, though apparent, is distinctly attenuated in comparison to that of the Ubaid. Future research including chemical compositional studies and soundings of more transitional layers will bear directly on this issue and others.

ADMINISTRATIVE ARTIFACTS

K. Aslihan Yener (University of Chicago)

Close to 600 small finds were recorded in the 1999 season and over 100 could have

possibly functioned as administrative devices. These include geometrically shaped clay tokens, stone stamp seals, clay baling tags and other clay sealings. Seemingly mundane the clay artifacts are actually some of the most important finds on the site. The sealings are often impressed lumps of mud with string, basket, fabric, fingernail, notch, ceramic rim, token and seal impressions visible on the obverse and/or reverse. Their appearance in great diversity suggests the existence of commodity management at the site and according to Schmandt-Besserat (1992) could be the logical predecessors to recording systems and writing (see also Ferioli and Fiandra 1983).

Seals

The corpus of stamp seals from the 1998 season was described elsewhere (Yener in Yener et al. in press). While the earlier finds came in a diversity of materials and incised designs, the 1999 examples were remarkable in having very unusual shapes. Unfortunately the most whimsical types are from insecure contexts and include miniature stalk shapes, double conical stamps with cross hatching on both truncated surfaces and an unusual prismatic bead. Examples of miniature stalk shapes were found in the First Mixed Range from the 1930's excavations (Braidwood and Braidwood 1960: Fig 101: 4) and impressed on pottery from Tr.1/6/9 during the 1999 season (Yener in Yener et al. in press Fig 26: 11). Problematic to date from its fill context is a four-sided black, bead-like prismatic stone with incised motifs resembling "doodling" but actually upon close examination depicts stylized quadrupeds camouflaged in dense foliage and dots (Yener 2000: Fig. 1). Similar delicate, linear quadrupeds were cut into Phase F stamp seals from Judaidah (Braidwood and Braidwood 1960: Fig. 193: 9) and lentoid gabled seals from Phase G (Braidwood and Braidwood 1960: Fig 253: 9). However, the shape of the seal is better known in later periods such as a cubic seal with rounded corners from uppermost level I at Atchana/Alalakh in the Amuq dating to the second millennium B.C. (Woolley 1955: 267) and later 7th century B.C. examples from the Levant.

Another unusual amulet/seal of black stone comes from a more secure context in Tr 14 and is in the shape of a small, recumbent dog with cross hatch designs incised on the rectangular base (Fig. 17: 17). The dog has two ears, muzzle and erect tail clearly demarcated and was perforated across the body. Zoomorphic amulets such as ducks, boar head and fly with incised decorations generally appear in the Halaf period and may have been used as seals at Arpachiyah and nearby Gogjali (Mallowan and Rose 1935: Fig. 51: 798, Pl. V: 9 and Pl VIIa 3rd row; for other sites see von Wickede 1990: 111-2). From later periods, an animal shaped stamp in the form of a lion stems from Hacı Nebi Tepe near Urfa (Stein et al. 1998: Fig. 10 and 11) and multiple varieties were unearthed in the Grey Brick Stratum at Brak dated to the Uruk III-V in the late 4th millennium B.C. These include recumbent hare, dog and quadruped with criss-cross patterns cut across the base (Buchanan and Moorey 1984: Pl XI: nos 169, 170, 175). Animal shaped pendants in the Amuq date from Phase B (Braidwood and Braidwood 1960: Fig. 67: 13) and snake from Phase F (Braidwood and Braidwood 1960: Fig. 193: 7) although there is no indication that these were used as seals.

More usual are the stone stamp seals with geometric motifs incised on the base (Figs. 16: 1-3). Tr 18 yielded a truncated pyramidal seal with square base and decorated with nine encircled drilled holes (Fig. 16: 3). The seal was subsequently pierced from the base to the original perforation. Drilling can be observed on seals from the First Mixed Range (Braidwood and Braidwood 1960: Fig. 101: 6) and Ubaid related Phase E in the Amuq (Braidwood and Braidwood 1960: Fig. 167: 3) but encircled drillings are typical during the Halaf period seals at Gawra (Tobler 1950: 173:34)

Other beads inscribed with figurative designs were found at Kurdu but again stemmed from insecure contexts and are thus not illustrated here. The first is a flat, perforated lentoid-shaped white stone incised with a stag and foliage design. The shape has a familiar bead morphology especially during the Halaf period. Especially provocative is a cylindrical stone bead/seal, which begs speculation about the origin of cylinder seals stemming from perhaps incised beads used as seals.¹² Earliest cylinder seals appear during the subsequent Uruk period. The design consists of a scorpion, a stylized human and a quadruped.

Sealings

Of the diversity of clay sealings found at the site only one had a design impressed on it; this comes from Tr 14 (Fig. 16: 4). The shape of the sealing is concave on the obverse where the stamp was impressed and convex where it had been pressed against a string, presumably around the neck of a jar. The motif is a delicate foliate figure with pine needle-like linear incisions and perhaps a stylized pine cone dangling from a branch. A garland border surrounds the perimeter of the sealing but the sealing is broken at the top making it impossible to determine whether the border is complete. Floral patterns on stamp seals in a multitude of complex styles were found at Tepe Gawra XIII in a well (Tobler 1950: Pl. 160: no. 38) and Level XII (Tobler 1950: Pl. 54: no 16) as well as at Ubaid period Değirmentepe (Esin 1985: 261 Fig. 5). Trace element analyses of clay sources and Kurdu artifacts will ultimately illuminate the possibility of non-local communication suggested by the stylistic parallels.

Other impressed clay objects from Tr 14 include Fig. 16: 9 which appears to be wrapped with grass, another one looks like the impression of a reed and may be a basket sealing (Fig. 16: 7) while another appears to be impressed on string from Tr 16 (Fig. 16: 10). Similar fibrous impressions on sealings were found in Phase E in the earlier excavations (Braidwood and Braidwood 1960: Fig 160: 20). A small lentoid pellet with fingernail (?) notches and reed impressions was unearthed in Tr 16 (Fig. 16: 8). Figures 16: 5 and 6 from Tr. 14 appear to be of jar stoppers. Such storage and administrative devices were found from Late Neolithic period contexts in Sabi Abyad in Syria (Akkermans and Duistermaat 1997) and other Halaf/Ubaid examples from Turkey and other areas can be found catalogued in Schmandt-Besserat (1992).

¹² This is a suggestion Edith Porada had often stated during seminars at Columbia University.

Tokens

Only six shapes of a rich and complex corpus are illustrated of “tokens” or geometrically shaped clay objects from Kurdu. Called gaming pieces in the past, these administrative devices come in a variety of shapes and may constitute the precursors of clay artifacts placed inside hollow balls for record keeping during the Uruk period (Schmandt-Besserat 1992). Fig. 16: 11 is a perforated lentoid shaped example which is from Tr 14 and from the same trench, Fig. 16: 13, is a squat conical shaped one. Examples of clay cones were found in 1998 (Yener et al. in press Fig. 26: 12, 13) and in the earlier excavations labeled ‘nails’ (Braidwood and Braidwood 1960: Fig. 160: 18). A great quantity of spheres were also unearthed from Trenches 12, 14 and 11 (Fig. 16: 12, 16: 13, and 16: 11).

DOMESTIC EQUIPMENT

C. Edens and K. Aslihan Yener

The equipment and other impedimenta of daily life at Tell Kurdu presents little sign of change through time, and most of the equipment can readily be paralleled in technology and form with materials from other Chalcolithic sites across the Near East. Accordingly, the following discussion focuses for the most part on describing the equipment without special chronological attention or search for parallels. The discussion considers artifacts only from good contexts (i.e. excludes soil overburdens, disturbed soils, etc.) unless an object merits special mention.

Metal

With the exception of the flat ax found on the surface of the site in the burial area, small fragments of copper were unearthed in the 1998 season as well (Yener et al. in press). Tiny fragments of metal, as well as a copper ore were found in 1999 which suggests that metal was also a part of the craft production at the site. Although not yet analyzed, the ore from Halaf/Ubaid transition in Tr. 12 seems to be malachite and would presumably have been transported from sources in the Kisecik area of the Amanus mountains nearby. A disc-shaped bead perhaps of malachite was found in Tr 11 and another fragment of copper stems from Tr 14. The shape of the bead is consonant with the multitudes of flat, perforated disks in a variety of different materials (see below). Ground iron ore was found inside one of the groundstone mortars in the Tr 11 pottery kiln workshop. This ground material was presumably used to paint geometric designs on Ubaid-related ceramics.

Bone tools

The most common form is a pointed instrument made on a split and polished long bone shaft, with one condyle left intact as the handle. The working point often is made by fairly

blunt beveling on three or four sides, forming a very robust, thick point (Fig. 18:12). The point is normally centered on the long axis of the shaft, but occasionally is skewed to one side (Fig. 18:11). Most intact examples of this tool are 6-7 cm long, but some are as much as 12 cm long. A few pointed tools also have a hole drilled through the shaft near the condyle (Fig. 18: 10). In a basic variant, the working end is ground to make a more elongated tapering point, more circular in cross-section (Fig. 18:13). The pointed tools represent a basic technology in wide-spread use in prehistory, and is the commonest bone tool found at virtually all other Chalcolithic sites of the Near East. The tool is often identified as an awl, although the variation of point angles and size suggests that the tools supported several distinct activities.

Other types of worked bone appear less frequently. The tip of a horn core was ground to a very rounded and blunted shape, possibly a pressure flaking tool (from Tr 12:3). Polished strips of long bone shaft from which cancellous bone was entirely removed appear in Tr. 14; the fragmentary preservation of these pieces leaves their original form and function uncertain. Of equally uncertain function is a shaped and polished section of long bone shaft through which a hole was drilled; fragments of rib with a drilled hole also appear. These pieces may be needles, shuttles, or similar equipment.

Whorls, Discs and Recycled Sherds

Whorls are mostly made of reused sherds, on which the scars of preliminary shaping by percussion are sometimes still visible under the subsequent grinding (see below for chipped sherd tools proper). The manufacture of whorls varies in the degree of modification of the base sherd. In a few cases, the sherd is simply chipped into a round shape and the perforation drilled; if the perforation is drilled first (as is likely, since rates of failure by splitting the sherd must be highest for this step of production), then these whorls may in fact be unfinished. Most whorls were ground around the edge to form a more uniform circle, the faces of the sherd being left unmodified; many of these whorls are arced in profile. Some whorls are also ground on their faces to make a flat disc with parallel faces (Fig. 18: 1-2). Regardless of their production technique, the whorls are most commonly around 5 cm across (but ranging from 2 to 7 cm).

Other pieces are shaped and perforated before firing. These pieces vary considerably in shape – lenticular disc (Fig. 18: 3), flattened sphere, piriform and spherical (Fig. 18: 5-7), and barrel-shaped examples appear in the 1999 sample – and they tend to be smaller than the whorls made on sherds (many are less than 3 cm in diameter). Such objects are often classified as spindle whorls, but in some cases the aperture is far too small for this function (e.g. Fig. 18: 11, 18: 3), and the group probably represents multiple functions (e.g. whorl, net weight, loom weight)

Pierced stone discs, generally serpentine, occur less frequently. The discs appear in three size ranges. The smallest discs are 1.5-2.0 cm, and medium-sized discs around 5 cm, in diameter; these pieces are similar to the sherd whorls in shape, and made with varying degrees of care. The perforation of one thick disc from the Tr 12:11 trash pit was unfinished. Several pierced stone discs are very carefully fashioned whorls with flat base and low domed top,

usually with an incised concentric groove near the edge; a hemispherical version also appears. These discs probably had functions similar to those of the clay discs. The largest pierced stone discs are much heavier (on the order of 4-5 kg), and must have been used for other purposes (e.g. digging stick weight).

Recycled sherds appear in several other guises. Some pieces are formally similar to spindle whorls, but with the perforation in an excentric position. Given the functional desirability of radial symmetry in spindle whorls (see Keith 1998), these pieces should not be grouped with the whorls, although their actual uses remain undetermined. A few sherds, mainly from Tr 12/16, were shaped into a disc but not perforated (Fig. 18: 8). One of these was shaped by flaking and then pecking, the others by grinding; in one case a pair of small holes were drilled through the disc at opposite sides (Fig. 18: 4). Another sherd was ground to a subrectangular shape with rounded corners, and then given deep notches on opposite sides, probably to function as a net weight (Fig. 18: 9). Tr 12/16 also presented a number of sherds with grinding facets on breaks (probable use-wear) and in one case bifacial retouch to formed an arced tool edge.

Sling Balls

The biconical baked clay objects commonly identified as sling balls or pellets were present in all parts of the site. Made of a dense gray to brown clay, these objects typically are 3-5 cm long and 2-3 cm across at the widest point (Fig. 16: 16). The biconical examples were also unearthed earlier in a variety of materials from stone to baked clay examples (Yener *et al* in press Fig 27:2). The same form occasionally appears in stone from the 1999 season as well (e.g. in Tr 15:16, Tr 14: 36)

Stone Vessels

Stone vessels are a minor but persistent element of the assemblages. Bowls, both heavy and fine, are the most common vessel form (Fig. 19: 9, 11). Usually given simple rims, sometimes more elaborate forms appear (e.g. a beaded rim; Fig.19: 12); vertical lug handles with horizontal perforation are sometimes present. In the 1999 sample, decoration is limited to one or multiple incised grooves beneath the rim (Fig.19: 13). Other forms occurred in insecure contexts; among these is a flat dish with vertical sides (similar to a common lid form), and a squat pot with a sharply everted rim. Recycling of stone vessel sherds is evident in a shallow asymmetrical bowl fashioned from a fragment of an older container, the low disc base of which appears on the side of the new vessel (Fig.19: 10). Almost all the stone vessels were made from serpentine, with one very heavy basalt bowl also appearing. The vessels are all small – where determinable, rim diameters are 7-12 cm regardless of vessel form – but vessel walls can be a centimeter thick.

Celts

Celts are another ubiquitous Chalcolithic artifact type. The examples found in 1999 vary somewhat in size and shape. They generally are 3.5-4.0 cm long (as short as 3.0 cm and as long as 5+ cm) but vary more in width from less than 1 cm to over 4 cm. However, the narrower celts often are reworked larger broken celts (e.g. Fig. 19:1, 4).¹³ In shape the celts may be roughly square or rectangular with nearly parallel lateral margins (e.g. Fig. 19: 3-4), or tapered toward the butt (Fig. 19:1-2, 5), and the butt itself sometimes is heavily battered. The working edge may be symmetrically or asymmetrically beveled (Braidwood's distinction between axes and adzes; Braidwood and Braidwood 1960: 41-42); use-wear includes both impact flake scars and heavy rounding, but wear often is not pronounced. Serpentine is the most commonly used material for the celts, with basalt, possibly nephrite, and other stones not yet identified also occurring.

Other Stone Artifacts

The heavy grinding and pounding equipment were not systematically examined this year. Casual examination indicates that most are relatively small slabs of vesicular basalt, used as querns; some of the hand stones are cubic in shape. Well-formed mortars and pestles of the same material are less common. Basalt is available from a belt of outcropping flows that borders the eastern side of the Amuq plain and extends through the Gaziantep area and northern Syria (see Lease and Laurent 1998). A rectangular slab of serpentine(?) presents a pecked circular hollow on one face, perhaps a nutting stone

The three polished and pierced "mace heads" found in 1999 came from insecure contexts; made of serpentine, haematite and basalt (?), two were piriform and the other cubic in shape (Fig. 19: 6-7). An oblong subrectangular limestone cobble from Tr 14 bears a drilled hole in each of its two faces (Fig. 19: 8); the size of these holes (.84 cm in diameter) suggest that this object is not an unfinished hammer or similar object, but may be the handle for a compound tool (e.g. a bow drill, used in producing beads).

Ornaments

The 1999 excavations recovered over 200 beads of various shapes and materials. Beads were especially frequent in Tr 14 where bead production seems to have occurred (see Özbal, above, for evidence of production); a cluster of 39 beads occurred near the base of the subsoil in that trench. The great majority of beads are tubular or disc in shape, with other types each represented by only a few example.

The tubular beads are fashioned from shell (ground and drilled columella, *Dentalium*), baked clay, bone and stone (mostly serpentine and marble); except for *Dentalium* (e.g. Fig. 17:

¹³ Braidwood's distinction between chisels and axes or adzes depends on width (Braidwood and Braidwood 1960: 42), but recycling of celts urges caution in taking literally these functional designations.

20), the beads are fairly short, and the perforations even on stone may be very narrow (10-15 mm across; see Fig. 17:12, 15). The disc beads are usually made of stone (mostly obsidian and serpentine, along with marble and agate), with examples of shell and clay also occurring. These beads often are extremely small (30-50 mm across, 10-15 mm thick) even when made of stone. The obsidian disc beads are usually fashioned from flakes that are chipped into rough shape then ground, the perforation achieved by drilling a shallow depression on one face and then punching (pressure or indirect percussion) through the remaining thickness (see Chevalier *et al.* 1982 for a description of this technique); the resulting bead is usually markedly asymmetrical in cross-section (one side of the disc being thicker than other) and often irregular in shape (flat rectangular or trapezoidal beads of serpentine also occur at variations of the disc); the perforation sometimes takes up most of one face of the disc (Fig. 17: 10). The clay disc beads may be made from recycled sherds or shaped and perforated before firing.

Other bead shapes that appear in small numbers include: segmented tubular (unidentified stone; Fig. 17: 13); barrel, once with longitudinal facets (serpentine, calcite, marble); spherical (baked clay); faceted biconical (agate); shoe last-shaped (narrow rectangle with a high plano-convex longitudinal cross-section, perforated laterally, in marble); flat cordiform with collar each end around the longitudinal perforation (serpentine; Fig. 17: 19); and whole marine shells (mostly conids) perforated through the apex. A serpentine 'double-ax' bead or pendant resembles examples that Braidwood reports from Amuq A contexts, but in this case perforated through center of the piece rather than through its longitudinal axis (Fig. 17: 18). Although from insecure contexts, two elongated rectangular serpentine beads, square in cross-section, deserve mention: one example from Tr 13 presents very shallowly incised figurative decoration. Tr 13 provided two additional beads with figured decoration, again from insecure contexts – a shell tubular bead with schematically incised animal and trees; and an oval bead with lenticular cross section, one face depicting a quadruped, the other a double column of wavy lines.¹⁴ A few beads bear a double perforation, among them an oval obsidian disc and a flat obsidian rhomboid with perforations in opposite corners, both from Tr 13; a flat oval with a wide longitudinal groove along one face and perforated at each end from Tr 12 (Fig. 17: 14), and an elongated flat crescent of shell (?) perforated at each end, from Tr 15 (Fig. 17: 9).

Although fewer in number, the pendants are equally varied in form. The most common form is a stemmed tear-drop of serpentine or quartz, one face of which often bears incised geometric decoration (cross-hatched lozenges, oblique hatching; Fig. 17: 21-22). Similar to Mallowan's type 1 pendant at Arpachiyah (Mallowan and Rose 1935: 92), these pendants occur in both Amuq C and Amuq E contexts. Another noteworthy serpentine pendant, from Tr 14, is zoomorphic, a dog-like shape with flat sides and bottom, perforated through the side and bearing incised cross-hatching on the bottom (Fig. 17: 17). Another zoomorphic pendant is a surface find from Tr 12: a stylized animal head in the form of a 'Y', with incised grooves on edges and around the 'horns', and perforated through the stem of the 'Y' (Fig 17: 16). A

¹⁴ This bead resembles in shape and elements of motif Ubaid seals from Değirmentepe (e.g. Esin and Harmanakaya 1988 fig 36: 5, 7), but the latter are carved on one face only.

large (7.1 x 3.2 cm, 1.5 cm thick) slightly curved rectangle of unidentified stone from Tr 14 is perforated one end and ornamented with a deeply incised grid pattern on one face. A simple elongated thin foliate pendant of serpentine appeared in Tr 13, as did a perforated rock crystal pebble. A large cordiform pendant with plano-convex cross-section from Tr 18 was made from a split and carefully ground marble cobble, and bears a compound right-angle perforation drilled from one end and the flat face; this neat stringing technique also occurs in Amuq E contexts (Braidwood and Braidwood 1960 Fig. 166: 21).

Several artifacts from insecure contexts may be mentioned here as well. A serpentine labret appeared in Tr 13; this piece presents a nearly flat bottom and domed top with a waisted body. Fragments of small serpentine rings (cf. finger or toe rings; estimated diameters 1.2-2.0 cm) appeared in Tr. 11 and 16. Several flat and polished, carefully formed discs of obsidian, about 4 cm across, and 3-4 mm thick, occurred in the subsoil of Tr 14; one disc carries a very small perforation at the edge next to a break, probably a repair hole. Several marine gastropods are ground open on one side, either across the aperture or through the whorls.

Figurines

Most baked clay figurines are representations of quadrupeds; the species of animal usually is unidentifiable although some appear to be sheep (Fig. 17: 7), others dogs (Fig. 17: 6). A smaller number of figurines are anthropomorphic. The head of a figure with coffee-bean eyes and elongated conical head appeared in Tr 11 (Fig. 17: 1); similar figurine fragments have been recovered from the same part of the south mound (Yener et al. in press), and on the basis of current evidence this style is associated only with Amuq E assemblages at Kurdu. Another distinctive figurine form appeared only in Tr 14 (and Tr 13 in an insecure context). These are busts with a flat base, a slight waist, sometimes indications of nipples, and stubby protrusions for arms. The examples found so far are missing the head (Fig. 17: 2-3), although a smaller variant of this style has a conical head (Fig. 17: 5). Braidwood found the same style of figurine in Amuq E contexts (Braidwood and Braidwood 1960: 204, Fig. 160: 12-14), and similar figurines appear as far away as Susiana.¹⁵ A roughly shaped and fairly flat figurine from Tr 12 (in an unreliable context) may be an earlier variation on the same theme: rounded bottom and waisted, head and indications of arms missing, with an incised rectangle containing punctate impressions across much of the lower portion of one side. And several roughly modeled lumps of clay with a curved stalk on top (fig-shaped), all found in Tr 14, may also belong with this group.

A more representational figurine, from poor contexts in Tr 13, represents a seated figure with legs outstretched, but arms and head missing (Fig. 17: 4). This piece bears red painted bands and stripes around the torso. Analogous figurines appear at sites like Arpachiyah (but not sitting; Mallowan and Rose 1935: 81, Fig. 45: 1-5) and Gawra (Tobler 1950 Fig. 153.4). Another striking figurine, a surface find, is a clay cone with appliqué pellets

¹⁵ .. E.g. Choga Mish, where they are described as squatting; Delougaz and Kantor 1996 pl. 236.B, E. Similar figurines also appear in earlier contexts, as at Sabi Abyad (Collet 1996 Fig. 6.2: 1-5).

representing breasts and nose, the eyes indicated by incisions. A stone animal head with large and strongly spiraled horns, found in one of the bulldozer cut sections, is another distinctive figurine (Fig. 17: 8); fragments of the same style occurred in Tr 13 and other examples have appeared as surface finds in previous seasons. Apparently a recurrent form, these figurine cannot yet be put in chronological context at Kurdu. Other fragments of baked clay – cylinders, hooked cones, tabs – may be parts of figurines, or of other artifact types like tokens, mullers, spoon handles¹⁶ and the like.

CHIPPED STONE

C. Edens

Time constraints permitted study of only a small sample (n=520) of chipped stone from the 1999 excavations. Accordingly, the study had the two general objectives of initial description and a comparison of selected assemblages for diachronic change. For the latter objective, the study focused on materials from Tr 12/16 (late Amuq C and D) and Tr 14 (early Amuq E). The following presentation will first describe the common features of the Kurdu chipped stone (Amuq C-E inclusively), and then will address the differences between Amuq C from Amuq E assemblages.

Raw Materials

Flints of various textures and colors provide the commonest materials. The most frequent material is a medium-textured pale gray to light brown fossiliferous flint (abbreviated here G/BM); the range of colors may appear in the same piece. A darker gray-brown version of this material (DGM) also figures in small amounts. Other medium-textured flints are less common, with white to cream (MW), brown (MB), and pale gray to gray-brown mottled with dark gray (MG/B) appearing. Fine-grained flints are equally varied: dark gray (FDG), gray with occasional gray-brown mottling (FG), light brown (FB), white or cream (FW), reddish brown with cream mottling (FRB), translucent brown with occasional red-brown mottling (FTB), and translucent gray-brown with occasional cream mottling (FTG). Coarse-textured material is limited to a granular fossiliferous pale brown to light gray flint. Burnt flint is usually unassignable to any of these categories, and is separately listed. Obsidian (OBS) rounds out the raw materials commonly present in the study sample.

The variations in texture and color gives the impression of great heterogeneity and multiple sources of raw material. Several factors limit this impression. Many of the variations are in fact superficial, with color and occasionally also texture variations appearing in the same piece. Furthermore, some materials most commonly find technologically specific uses, notably G/BM and OBS as blades. Accordingly, the following discussion will make basic distinctions only among fine flint, medium flint, G/BM, and OBS. Obsidian obviously is exotic in the

¹⁶ Spoons with a hooked handle occur at Degirmentepe; Esin and Harmankaya 1987 Fig. 32: upper right.

Amuq context; a pilot chemical characterization study of ten pieces, under the auspices of M.-L. Cauvin, will begin to identify the sources of the Kurdu obsidian. The fine and medium flints seem to have derived from fairly small pebbles (struck pebbles and cores on pebbles in the study sample are no longer than 5 cm, and flakes of these materials generally do not exceed 5 cm in greatest dimension). These pebbles may be present within the Pleistocene gravels of the Afrin delta upon which Kurdu sits; alternatively, they may be available in the fans at the base of the Amanus Mountains. MG/B appears as somewhat larger pebbles or small cobbles, and the blades made of this material commonly approach 10 cm in length. These cobbles presumably have the same sources as the smaller pebbles. Excepting the obsidian, in other words, the raw materials are likely to be available either in the Kurdu neighborhood (e.g. in erosional cuts of an active Afrin drainage) or at the edges of the Amanus.¹⁷

Technology

These raw materials were used in different ways (Table 5). Blades make up a strong component of the Kurdu chipped stone industry, comprising half the total sample and up to four-fifths of individual assemblages. In the aggregate, 79% of the blades appear in G/BM or OBS. By contrast, these two raw materials comprise only 29% and 7% respectively of the flakes, flake cores and shatter, while the various fine flints make up fully half of these pieces. Put in another way, 72% of G/BM and 77% of OBS pieces are blades, while 87% of the fine flint pieces are flakes, shatter, chunks and flake cores. These differences suggest the presence of several different reduction strategies conditional on size and form of raw material, intended functions of tools, and possibly differential access to raw materials and the social locations of production (e.g. restricted access to exchange networks, specialized production). Flake cores are relatively common whereas blade cores are absent from the studied samples. Similarly, cortical flakes and related debris are common (nearly a third of the Tr 14 sample) but cortical blades are rare (3-4% of the aggregate in each phase). These observations may reflect off-site production of blades, but the presence of several crested blades suggests on-site production in a restricted number of places, or a degree of specialization.

Blade Trajectory

The flint blades at Kurdu fall within a fairly narrow range of morphological and metrical variation, indicating use of a single technique. Blades present subparallel edges and dorsal ridges, often distally tapering from the widest point at the proximal end (Fig. 20: 1). The striking platform remnants are plain (a few faceted platforms also occur), with grinding on their dorsal aspect, and are often very restricted with wider rounded shoulders. Platforms are

¹⁷ Gray to pinkish gray limestones of Early Paleocene date contain thin chert beds and flint nodules; exposures of this formation lie along the eastern front of the Amanus Mts. from Belen southwestward past Antakya, with wider exposures north of Belen (Aslaner 1973: 28 and end map). These potential sources lie within 15 km of Tell Kurdu.

angled fairly sharply with respect to the dorsal face: on G/BM blades, the average platform angle $76^{\circ} \pm 7^{\circ}$ ($n=38$; range 90° - 60°). Bulbs are generally low and diffuse, usually lack a bulbar scar, and lipping on the ventral aspect of the platform remnant is common. While the great majority blades were struck from single platform cores, several fine flint blades from Tr 12/16 came from bipolar cores.¹⁸ Blades with cortex are infrequent, making up 3% of the aggregate total and varying little in frequency among the different raw materials. The blades differ somewhat in their metric attributes according to raw material. G/BM provides the only sample with more than several complete blades; these are 8.27 ± 1.20 cm long ($n=8$; range 6.41-9.89 cm). The G/BM blades are significantly wider than the fine and other medium-textured flints, but the flint blades in general have a similar thickness (Table 6). These metric patterns probably reflect different sizes of raw materials and corresponding geometry of cores. Obsidian blades also present plain striking platforms that often are reduced to a linear zone of grinding; bulbs are generally smaller but more prominent than on the flint blades. The obsidian blades are significantly narrower and thinner than the flint blades.¹⁹ These characteristics suggest that the obsidian blades were produced with a pressure technique, the flint blades with a soft hammer or indirect percussion technique.

The blades in the study sample present a limited range of modification, notably several combinations of backing and truncation that exhibit strong patterning by raw material (Table 7; Fig. 20: 2-6). In the studied sample, fine flint and OBS blades are not backed or truncated, while medium flint blades occasionally, and G/BM blades somewhat more frequently, receive this modification. Gloss appears in low proportions on G/BM and other medium flints (on 11% of these blades in the aggregate), while fine flint and OBS blades are not glossed. Gloss and modification occur basically independent of each other: only slightly more than half the backed and/or truncated pieces are also glossed, while slightly less than half the glossed pieces are not backed or truncated (the differences between assemblages in modification rates are considered below). Other types of retouch also appear among the blades: (1) marginal retouch along one or both edges (three cases, all G/BM), in one example of which the retouched edges were convergent and one edge was also glossed; (2) scalar semi-invasive, sometimes bifacial, retouch along one or both edges in two cases, both fine flint; (3) abrupt normal retouch along both edges of an FDG blade; (4) notches, once on a glossed MW blade notched after its initial use, and once on a truncated G/BM blade; and (5) a scraper on the distal end of a truncated G/BM blade; a dihedral burin on a blade was also found on the surface of the north mound.²⁰

¹⁸ Braidwood reports an opposed platform blade core among his Amuq C material; Braidwood and Braidwood 1960: 154.

¹⁹ These statistics show no significant differences between Amuq C and E assemblages for either flint or obsidian blades.

²⁰ Early and Middle Chalcolithic lithic assemblages from other sites in southeastern Turkey and northwestern Syria often present a wider formal typological variability than found in the 1999 Kurdu sample (e.g. Algaze et al. 1986, Bernbeck et al. 1999, Copeland 1996, and the 1938 sample from Kurdu itself; Braidwood and Braidwood 1960). The relatively small size of the 1999 Kurdu sample may account for part of this discrepancy, but some typologically more varied assemblages are equally small. The peculiar nature of the Tr 14 trash deposits, which provide the bulk of the sample, must also play a role.

In addition to retouch, macroscopically visible use damage appears on nearly half the glossed blades, and on a smaller proportion of non-glossed blades (16% in Tr 12/16 and 5% in Tr 14, including cases where damage occurred after gloss formation). Damage is occasionally coarse on the unglossed blades (among them a backed blade).

Flake Trajectory

In general, the flakes exhibit the relatively large platforms and prominent large bulbs of hard hammer percussion. Flakes seldom exceed 4 cm in maximum dimension: for the total sample, 24% of the medium flint flakes and 19% of the G/BM flakes exceed this figure, but only 6% of the fine flint flakes (including two core-flakes) do so;²¹ a third of these larger flakes are cortical. The same small size is evident in the flake cores. Cores take several forms, among them:

1. Small cobbles from which one or several flakes are removed, often without platform preparation. Of the four recorded cases, three are fine flint and the other is G/BM. The cobbles are not more than 4 cm in maximum dimension.

2. Single platform, single release face cores. Of the two cases, one is made on a MWB cobble so that the core height is only 3.5 cm, while the other is a more reduced FRG block capable of yielding flakes less than 2 cm long.

3. Core-flakes, in which a relatively large flake is used as a core to remove smaller flakes (see Miller 1985 for this type of core). The three examples here are all fine flint flakes used to make flakes less than 2.5 cm long.

In addition, the original form of three core fragments cannot be determined; of these, a G/BM piece is the largest (5 cm wide). The frequent use of cobbles account for the relatively high proportion of cortical flakes and debris (17% in the Tr 14 sample, 12% in the Tr 12/16 sample; note that the cores make up a comparable proportion of each sample).

A limited number of flakes are retouched. Two are treated like blades, being backed or truncated and backed, and another two bear semi-abrupt retouch along one edge; one flake is notched. In addition, one small flake was struck laterally across the front of a scraper, removing its working edge. A chopper made on a cobble of non-siliceous gray stone may also be mentioned here. Use-related macroscopic edge damage is limited to two flakes, while one chunk has a battered edge.

As previously noted, different proportions of raw materials distinguish the flake component from the blades in the two assemblages. The prominence of fine flints among the flakes and flake cores, the small size of the flakes, and the selection as cores of cobbles and flakes incapable of yielding blades of the size found at Kurdu, all point to a separate trajectory for producing flakes. Moreover, at least in the samples in hand, the persistent if low frequency appearance of flake cores contrasts with the absence of blade cores even in contexts with strong representation of blades, suggesting that flake production was more widely performed,

²¹ These percentages include broken flakes and so underrepresents the true proportions. But the evident size difference between the medium- and fine-grained materials remains.

perhaps as an expedient industry, than was blade production.

Comparison of Tr 12/16 and Tr 14 Assemblages

As already stated, the technological character of the lithic industry remained stable from Amuq C through Amuq E times. Even so, some differences distinguish the late Amuq C and D assemblages of Tr 12/16 from the early Amuq E sample from Tr 14. Raw materials provides a salient source of variability: in the Tr 12/16 sample, obsidian and G/BM each contributes about 30% and fine flints about 20% of the total assemblage, whereas in the Tr 14 sample G/BM alone makes up nearly half the assemblage, fine flints also increase to nearly 30% while obsidian drops to barely more than 5% of the assemblage (Table 5).²² The blade component accounts for much of these shifts, as the proportion of G/BM among the blades in the Tr 14 assemblage is more than twice that among the Tr 12/16 blades, while the proportion of obsidian blades drops from over 40% to under 10%. The proportion of obsidian in the Tr 12/16 sample is extraordinarily high (other late Halaf sites with unbiased recovery of chipped stone report far lower relative frequencies of obsidian, e.g. 3% at Kazane; Bernbeck *et al.* 1999: 122). If further excavation proves the high proportion of obsidian in Tr 12/16 to be representative of the Amuq C lithic industry in general, then Kurdu must have been a nodal point on interregional distribution systems of later 6th millennium, but lost this position by the early 5th millennium BC.

A second contrast concerns modification of blades: the proportion of backed and/or truncated blades drops from 31% in the Tr 12/16 sample to 7% in the Tr 14 sample. This change potentially has chronological significance, as Braidwood also reports that these modifications decrease through time.²³ However, the rates of gloss also declines sharply (from 21% to 8%), and although gloss and modification occur independently of one other, they probably form parts of a wider behavioral complex related to plant processing. In this event, the contrast between the two samples is functional rather than chronological. The high number and proportion of blades in the exterior trash deposit locus 19 of Tr 14 suggests that specialized refuse was dumped here, while the remaining materials from Tr 14 reflect more ordinary household activity with a marked emphasis on flakes and flake production (Table 8).

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²² The possibility of sampling bias at Kurdu can be ruled out, since samples from screened loci contain equally high proportions of obsidian. Braidwood also reports high proportions of obsidian for his Amuq C-E samples (24-36%, based on Braidwood and Braidwood 1960: 150, 168, 204, 214), but here sampling bias is inherent to the hurried excavation (with clear bias toward larger pieces and blades, the latter constituting 77-87% of his samples).

²³ Falling from 35% in the Amuq C sample of flint blades (N=69) to 21% in the Amuq E sample (N=402; the Amuq D sample falls at 20%, N=45); calculated from Braidwood and Braidwood 1960: 150-52, 168-69, 207-209.

The faunal material analyzed during the 1999 season came from the upper deposits of Tr 11/15, 12/16, 13 and 14, excavated during the first three weeks of excavation. During the first weeks of the 1999 season relatively few deposits were screened, and the faunal material mostly collected by hand. This recovery technique creates a bias against microfauna, and particularly fish, in the assemblages reported here.²⁴ This recovery bias must be kept in mind in the evaluation of the assemblages. The in-field analysis was very preliminary. Animal remains were sorted into major taxonomic groups (sheep/goat, suid, cattle) and only body part information was recorded. Side and portion of the bone were not recorded, nor were measurements taken, in anticipation of a more complete analysis at a later date. This type of recording system was adopted in order to learn as much about the bones as possible in the limited time available. Identification of the bones were done using anatomical texts, as there was no access to comparative material. Identification of the bones were made more difficult as much of the sample was heavily concreted with carbonates. The second stage of analysis, with access to comparative material, will increase the identifiable portion of the sample.

The Faunal Sample

The Kurdu assemblages (Table 9) are dominated by domestic animals, sheep and goat, cattle, and pig, although these are represented in different quantities in the different trenches. Tr 11/15 produced little material in comparison to the other trenches, and also shows a smaller variety of remains, lacking the felid, bird and turtle remains present in the other assemblages. The latter characteristic may simply be the bias of small sample size. More generally, low screening rates probably biased all the samples against smaller animals like rabbit, rodent, bird, fish, and turtle.

Other than carbonate concretions, the preservation of the bone is quite good, with little fragmentation, and identification of large portions of the samples is possible. Since all fragments were counted and weighed, it is possible to determine a rough estimate of fragmentation through the use of the average size of the fragments present in each unit (after Zeder 1991). This is illustrated in Table 10. The large fragment size makes it possible for a greater percentage of the assemblage to be identified.

Interpretation

While the residents of Tell Kurdu relied heavily on domestic animals, they also commonly incorporated wild species in their diet (Table 9). The probable recovery bias inherent to the present sample leaves uncertain the role of aquatic fauna, assessment of which must await analysis of the screened samples. The data modestly different proportions of

²⁴ Experiments conducted by Shaffer (1992), for example, show that even screening with 1/4" mesh, animals less than 140 grams are almost completely lost, and only animals larger than 4500 grams are represented by most skeletal elements. Watson (1972) has shown that collecting by eye produces an even greater bias; in short, small remains are typically overlooked.

domesticate species across the samples, with sheep/goat appearing in lower proportions and pig in higher proportions in Tr 11/15 compared to Tr 14 and Tr 12/16. This contrast may have chronological significance, as it parallels a similar contrast found in the preliminary 1998 data (see Yener *et al.* in press). Small sample sizes make firm conclusions premature, and this possibility will be examined in future analysis. More generally, the patterns of animal exploitation at Kurdu is different from that found in later assemblages, in which sheep and goat become the dominant domesticate, with cattle and pig playing a much more minor role. This same pattern can be seen in Zeder's (1995, 1997) analysis of faunal assemblages from the Khabur. Her study of 6th through 2nd millennium assemblages shows an eclectic mix of wild and domestic fauna, with an increasing reliance on sheep and goat appearing in the third millennium. The pre-urban assemblages at Kurdu show the same patterning, an eclectic mix of both wild and domestic fauna, with no reliance on one particular domesticate.

While the preliminary analysis of the Kurdu assemblages has produced interesting results, there remains a great potential for the collection of further information in the faunal remains. More in-depth analysis can provide further information regarding the species present at Kurdu, the environmental conditions, and the human interaction with that environment.

ARCHAEOBOTANICAL REMAINS FROM THE 1998 AND 1999 SEASONS AT TELL KURDU

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The Amuq Valley of southwestern Turkey lies within the Mediterranean woodland zone, which is primarily characterized by oak forest (Zohary 1973). Today the plain supports extensive fields of cotton, wheat, maize and other crops, and Tell Kurdu is seasonally covered in cotton and wheat. Palaeobotanical reporting from the Amuq remains sparse, and for prehistoric periods is confined to Hans Helbaek's study of plant impressions in Amuq A pottery from Tell Judaidah and Dhahab; Helbaek (1960) reports emmer wheat (*Triticum dicoccum*), hulled barley (*Hordeum* sp.), oat grass (*Avena* sp.) and rye grass (*Lolium* cf. *Gaudini*).²⁵

One goal of the renewed Oriental Institute project in the Amuq is an exploration of prehistoric agricultural practices at Tell Kurdu. The examination and analysis of macroremains is fundamental in determining these practices and in exploring the interaction between people and the environment of the Amuq. The excavation strategy of wide horizontal exposures permits examination of different types of contemporaneous contexts that more adequately represents the various uses of plants within the site. The excavations to date have exposed architecture and several deposits of dense burnt grain that seem to represent remains of crop storage facilities (Yener and Wilkinson 1997, Yener *et al.* in press). Other contexts contain more sparse but sometimes more varied plant remains. This report provides a preliminary

²⁵ Third millennium sites provide additional botanicals: probable wheat and barley in Amuq G, barley in 2nd Mixed Range, and probable date palm fronds in Amuq I (Braidwood and Braidwood 1960: 344, 428, 497).

overview of the macroremains recovered during the 1996, 1998 and 1999, floated and examined during the latter two seasons.

Methodology

A Siraf-type flotation machine was constructed for processing soil samples. Flotation for both seasons took place on site for the first week of processing, then moved to the dig house because of complications with the on-site pump. As a result of low water supply, some of the smaller samples were bucket floated. However, samples with secure context and yielding great volumes of material were kept until machine flotation could be resumed. Whenever possible, sample volumes were at least 40 liters. However, volume was greatly dependent upon the size of the deposit being excavated. Samples were poured into the machine at 5 liter intervals and the light fraction was collected through a series of sieves, then transferred into finely woven cotton and set in the shade to dry.

Samples were collected and processed from eight trenches – Tr 1, 2, 4 (a and b), 11, 12, 14, 15 and 16. The samples were collected from middens, hearths, pits, burned architecture and ashy lenses, with additional samples collected from floor surfaces, ceramic vessels and ovens. The 11 samples collected during the 1996 season and two samples from the regional survey program (sites AS 181E and AS 180A.5) were processed during the 1998 season. A total of 115 samples were processed for the three seasons of excavation. Overall, the density of samples processed during the 1999 season was significantly lower than the samples from the 1998 season.

The samples from the middle and south end of the mound undoubtedly yielded the greatest volume of charred botanical remains. Some of the macroremain samples exceed 1000 ml in volume. Because of the very labor-intensive process of sorting botanical material, only a very small percentage of the larger deposits were sorted. At least one sample from each of the aforementioned trenches was examined, with the exception of Tr 16 which yielded little to no material. In all, 14 samples were fully or partially sorted with priority given to the south mound, where the context of deposits varied the most. A list of macroremains identified these 14 samples is shown in Table 11.²⁶

Crop Plants

Hordeum sp. (barley) appears in most of the samples from the middle and south end of the mound. The areas with the largest quantity of *Hordeum* include Tr 4b (loc 30 and 58), Tr 4a (loc 14 and 21), Tr 2 (loc 55), and the 1996 sounding (loc N3 and S4). These samples are almost exclusively made up of whole grains and cereal fragments and lack threshing debris

²⁶ Material was identified using several botanical atlases, seed illustrations and archaeobotanical reports (Beijerinck 1976, Hansen 1991, Martin and Barkley 1961, Schoch et al. 1988, Van Zeist, and Bakker-Heeres 1982), in addition to modern comparative collections. Thanks to the University of Minnesota Limnology Research Center for use of their facilities.

like rachis or spikelet forks. The presence of these 'clean' deposits is consistent with the interpretation of these areas being used as storage facilities. The deposits from the older north mound are poorly preserved, and although cereal fragments are present, most are extremely vassiculated rendering positive identification virtually impossible.

Triticum sp. (wheat) appears in all the Amuq D and E samples with the exception of Tr 14. Although the definite species of wheat is uncertain, it is believed to be monococcum. The samples with high ratios of wheat to barley also include spikelet forks, which are absent from deposits with high ratios of barley to wheat. This could be a result of tight fitting glumes around the grain (a characteristic of glume wheats), which do not easily separate during the threshing process.

Cicer arietinum (chickpea) is present only in Tr 4 and is believed to be associated with another storage facility. The burned architecture of this area reinforces this analysis. Like the *Hordeum* deposits from this trench, *Cicer* is extremely dense. However, the exact ratios for this crop plant have not yet been determined. Other identified legumes include *Lens culinaris* and *Pisum* sp. The overall quantity of these seeds is low but evidence for their presence (via fragments) is good, particularly in Tr 11/15.

Other Taxa

A variety of other species have been identified (Table 11). The assemblage is quite broad, considering only a small amount of samples have been examined. Although there are limited references specifically dealing with the Amuq, the taxa present at Tell Kurdu is consistent with sites throughout the Mediterranean and the Near East. All of the wild plant seeds are charred, with the exception of one Umbelliferae type seed found in Tr 12 and a large quantity of *Echium* in Tr 2. Generally, uncharred seeds are thought to be modern. A general Graminae category is shown in Table 11 and includes a number of different wild grass seeds that need further examination for positive identification.

Wood Charcoal

Small pieces of wood charcoal were present in all samples with the exception of Tr 4 and one of the 1996 samples, i.e. contexts where grain deposits are extremely rich. Tr 1 yielded the largest pieces of charcoal and contained the greatest volume. Tr 14 also contained large amounts of wood, but the fragments were significantly smaller than in Tr 1. Further analysis of wood fragments from these deposits may aid in determining available materials for the inhabitants of Tell Kurdu, as well as overall vegetation conditions in the Amuq valley.

Overview

It is difficult to compare the material recovered at Tell Kurdu to other sites in the Amuq, because of the lack of published reports. However, all the identified species are commonly found on archaeological sites throughout the Near East and Mediterranean regions.

Thus far, the site has proved to be extremely rich in archaeobotanical material, most notably barley and wheat. The quantity of cereal, the absence of threshing debris, and the scarcity of other species found several samples from Tr 4 and the 1996 sounding provide clear evidence for at least two storage facilities, one seemingly Amuq D in date (north mound) and the other Amuq E (south mound).

Nevertheless, it would be premature to make any gross assumptions about the economic importance of these crop plants to the inhabitants of Tell Kurdu. Minor contributors to the assemblage include wild grasses and weed plants which may grow in a variety of primary or secondary habitats. The greatest variety of seeds for this analysis came from floor deposits, particularly from Tr 1.

At present, the south mound generally reflects greater volumes of wheat than barley, whereas the north mound, not yet adequately sampled, contains more barley. The samples that have been sorted for the north mound reflect poor preservation resulting often in unidentifiable material. Future sampling will encompass collecting more material from this area. It is too early in the analysis process to determine any definite trends of agricultural production of the site. Future research will include an attempt to define what, if any, shifts in economy or environment has occurred.

DISCUSSION

The 1999 excavations add considerable information about the fabric of occupation and range of activities at Kurdu for the Amuq C and E occupations. The introduction of microartifact analysis adds a new and extremely important source of information; systematic study of pottery, chipped stone, and other artifact categories begun this season are already bearing fruit. Full analysis and integration of information inevitably lags behind basic stratigraphic comprehension, and the following sketch is an interim statement of current

The Tr 14 house and associated trash deposits represent early Amuq E occupation at the edge of the platforming area on the mound summit. Although the step trench did not reach platforming during the 1999 season, platforming is present in Tr 1/6/9 to the northwest and seemingly also in the bulldozer cut south of Tr 14. Judging by the bedded trash in the bulldozer section the Tr 14 building may rest just above platforming, but this relationship must be established in future excavation. Similarly, the wider context of the building, and especially its stratigraphic and functional relationship with the large building on the mound summit (Tr 1/6/9) remains undetermined for the moment.

Activities in the Tr 14 building changed during its long use-life. The stratigraphic position of the ovens in the north room shows that baking or other uses of these installations began well after the house was constructed. The trash deposits east of the building also reveal changing activities. Preliminary density counts for the various categories of artifacts in these deposits show several trends through time, the most noticeable being a sharp drop in the density of sealings and tags and a general decrease in the figurine and chipped stone densities through time (Table 12). These trends suggest a shift in administrative functions away from

the house (and other sources of the trash) during its existence. The trash deposits also contrast with the contents of the house, the latter presenting much lower densities of sealings, beads, chipped stone, figurines, and sling balls. Ground stone appears in greater densities in the house, while other domestic artifacts like spindle whorls, loom weights, bone tools, and celts occur in very low densities in both the house and trash. These contrasts reflect both activities and differential discard/loss patterns.

The results of the microartifact study pertain to the final phases of activity, when the use of at least one oven continued, and bead-making, shell-working and flint knapping also occurred in the north room. These results are somewhat discordant with the evidence of the trash deposits, which indicate decreasing densities of chipped stone and beads through time. These activities were likely relatively incidental pursuits, as equipment for shell and stone working (e.g. chipped stone drills) does not appear in the trash or room deposits, and the densities of chipped stone are too low for a workshop. In any event, both the trash and the room imply the presence of some special activities like bead-making and the general absence of some domestic routines like weaving. Whether these observations apply to the entire building or just to the eastern rooms of the building remains undecided.

The rhythmic bedding of trash deposits, both those excavated in 1999 and the underlying two meters of trash, reflects changing depositional patterns. Prior to excavation annual cycles of activity seemed a possible cause of this bedding, for example an alternation winter and summer activities. But the stratigraphic relationships between the trash and the building precludes such a straightforward account, since the building endured far longer than several years. Ovens of the type found in the north room are a possible source of material for the ash beds, but do not easily account for the thick deposition in a cyclical rhythm. Although the causes of cyclical bedding in the trash deposit thus remain uncertain, the periodicity of deposition must reflect a secular rhythm of labor, the investigation of which will reveal much about the Amuq E settlement at Kurdu.

The Amuq E architecture on the east slope of the south mound also reflects changing activities within the excavated area. The phase 1 kiln complex, where multiple firing installations allowed potters to turn out several distinct wares in the same facility, provides an opening to study of specialized production, and economic (and social?) complexity in the Amuq E community. Only small numbers of non-ceramic artifacts occurred in and around this complex. Although the microartifact analysis showed the interior surface to be 'cleaner' than the exterior spaces, the former context provided three-quarters of the 12 phase 1 small finds, among them artifacts like beads, a pendant, and a figurine that have no obvious function in a pottery. Other artifacts from the interior surface, like a stamp seal, several tokens, and grinding stone fragments, may be related to the functions of a pottery. The underlying phase 2 architecture implies a far more residential use of the same area. Although artifact frequencies are significantly lower than found in Tr 14 (and artifact density information is not yet available), the relatively common presence of bone tools and grinding equipment in the small assemblage (7 of the 11 registered artifacts), and the appearance of a spindle whorl are indicative of more varied domestic routines than are evident in Tr 14. The underlying phases

of architecture revealed in Tr 2 and the 1996 sounding again present a different architectural character, perhaps combines storage with domestic activities, this lying above a partially exposed round structure. The relatively dense burnt grain occur in contexts of Tr 11/15 phase 2 and below also indicate a shift in activity, as the Tr 11/15 phase 1 and 2 samples contain far more wheat than barley accompanied by threshing debris,²⁷ while the 1996 and Tr 2:55 samples (stratigraphically Tr. 2 phase 2 and pre-phase 3 respectively; see Yener et al. in press) contain much more barley than wheat and lack threshing debris. The east slope area seems to have maintained a fairly open architectural fabric throughout, in character more like Yarım tepe or Gawra than Degirmentepe. Since this area lay at or near the edge of the settlement, its architectural character should not be assumed for occupation on the summit of the south mound, a portion of the tell now removed by the bulldozer.

The late Amuq C architectural complex in Tr 12/16 contrasts strongly with the more slightly built domestic architecture found in Tr 7, some 30 m to the east. This complex contrasts even more strongly with the roughly contemporaneous architecture at places like Domuztepe, Turlu, Kazane, Çavı Tarlası (and e.g. Arpachiyah) where the more common Halaf pattern prevails of free-standing tholoi and other buildings in a more or less clustered arrangement. The nature of the complex remains uncertain, the building(s) extending in all directions beyond the limits of excavation. In addition to the massive size of many of its walls, this complex is remarkable for the amount of open space it contains – rooms account for no more than 17% of the exposed area, the remainder being walls and enclosed open space. Functionally speaking, this proportion is roughly similar to that found at contemporary sites, the difference being restricted access and the conversion of public into private space. The activities performed inside the building complex seem extremely varied, evident in the fixed installations (basins, hearths) of the courtyard, and the high variability of the relatively small artifact assemblage. Ignoring stratigraphic distinctions, the latter includes a relative abundance of twelve bone tools, eleven spindle whorls, five celts, twenty-four grinding stones, and four hammer stones; a net weight, two stone rings, several chipped or abraded sherd tools, four stone vessel fragments, four sling balls, eleven beads, a macehead, two figurines, four tokens, and three sealing clay fragments also appear. Although again density figures are not yet available, these artifacts form a far richer assemblage than found in any of the Tr 11/15 phases or in Tr 14, and probably rivals the latter in artifact density. The richness and density of its artifact assemblage, together with the absence of durable production debris other than chipped stone debitage and a single piece of worked serpentine among both macro- and microartifacts, corroborate the impression of generalized domestic activities within the building.

Several more general conclusions may also be made. The excavations thus far fully confirm Braidwood's earlier inference of shifting settlement location on the mound. The exposures of Amuq C-D architecture on the north mound, Amuq D on the northern skirt of the south mound, and Amuq E only on the south mound imply a sharp contraction of settlement area at the Amuq D-E transition. Excavation has not yet determined the extent of Amuq C and

²⁷ This conclusion assumes the interpretation presented above that the sample from loc. 20 in Building B was a post-occupation deposit within that building.

D occupation on the south mound, and in any event stratigraphic connections across the full extent of the mound are unrealistic -- the size of settlement at any point in time must always be somewhat uncertain. Two factors will limit this uncertainty. A pottery sequence from the step trench, fixed with physical stratigraphy and radiocarbon dates, will help resolve the current Amuq phasing into more tightly defined subphases. And the combined patterns of prehistoric occupation and recent mound disturbance make directly accessible from the surface different periods of occupation. This feature of the mound allows relatively inexpensive testing of settlement shifts, and wide exposures of contemporaneous architecture for all three periods, that can be placed in finer-grained relative order with the ceramic chronology from the step trench. Future excavation at Tell Kurdu will build upon these possibilities.

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Table 1. Sample Locations Microartifact Analysis.

Sample Locations	Amuq E - Trench 11 "Ceramic Workshop"	Amuq E - Trench 14 "Food Production Area"	Amuq C - Trench 12 & 16 "Large Architectural Complex"
Indoor Floors packed earth floor plaster floor	3 (Locus 14)	3 (Locus 15)	5 (TR 12 Locus 17; TR 16 Locus 28, 32) 4 (TR 12 Locus 28, 52)
Supra Floor			6 (TR 12 Locus 26; TR 16 Locus 21)
Outdoor Surface	1 (Locus 15)		1 (TR 12 Locus 19)
Fill/Trash			6 (TR 12 Locus 8, 22, 50; TR 16 Locus 13)
Wall Fill		1 (Locus 32)	3 (TR 12 Locus 16)
Fire Installations	1 (Locus 4)	1 (Locus 12)	1 (TR 12 Locus 32)
Basin Interior			1 (TR 12 basin set into Locus 28)

Table 2: Counts and frequencies of sherd categories from high-quality loci.

	Category I		Category II		Category III		Category IV		Total sherds
	N	%	N	%	N	%	N	%	
Tr 11	504	54	55	6	298	32	70	8	927
Tr 14	3380	65	241	5	1267	24	302	6	5190
Tr 12	581	59	143	15	154	16	100	10	978

Category I = undecorated body sherds. Category II = undecorated diagnostics.

Category III = decorated body sherds. Category IV = decorated diagnostics.

Table 3: Counts and frequencies of simple patterns of decoration and form classes from high-quality loci, based on all sherds recovered.

	Painted		Burnished		Jars		Bowls		Pots	
	N	%	N	%	N	%	N	%	N	%
Tr 11	263	28	61	7	33	4	39	4	17	2
Tr 14	1182	23	248	5	130	3	199	4	83	2
Tr 12	69	7	138	14	63	6	70	7	39	4

Table 4: Frequencies of decorated to all rim sherds by trench at Tell Kurdu.

	Painted Rims	Burnished Rims
Tr 11	45%	11%
Tr 14	46%	10%
Tr 12	14%	27%

Table 5: Aggregate composition of chipped stone assemblage by raw materials.

	fine chert	medium chert	G/BM	OBS	other	burnt	total
Tr. 12/16							
blade	8	6	25	31	1	2	73
flake	13	5	7	3	1	2	31
shatter	2	0	0	1	0	6	9
chunk	0	0	1	0	0	0	1
core	1	1	1	0	0	0	3
total	24	12	34	35	2	10	117
Tr. 14							
blade	18	9	133	15	5	6	186
flake	73	16	46	7	8	10	160
shatter	5	1	2	2	3	16	29
chunk	6	2	3	1	2	3	17
core	7	1	1	0	0	0	9
other	0	0	0	0	1	1	2
total	109	29	185	25	19	36	403

Table 6: Metrical attributes of Kurdu blades by raw material.

	N	length (cm)		width (cm)		thickness (cm)		range (cm)
material		average	s.d.	average	s.d.	average	s.d.	
OBS	48	2.29	.98	1.03	.34	.24	.15	
fine chert	23	4.36	2.12	1.62	.45	.41	.18	
medium chert	15	3.71	1.83	1.67	.46	.46	.17	
G/BM	153	4.37	1.99	1.88	.46	.45	.14	

Table 7: Patterns of modification of non-obsidian blades.

	fine chert		medium chert		G/BM		total
	glossed	non-glossed	glossed	non-glossed	glossed	non-glossed	
Tr 12/16							
backed	0	0	0	0	1	2	3
truncated	0	0	0	0	1	1	2
double truncation	0	0	0	1	0	0	1
truncated & backed	0	0	1	0	0	1	2
double truncated & backed	0	0	0	0	2	0	2
backed & retouched	0	0	0	0	0	1	1
truncated & retouched	0	0	0	0	0	1	1
other retouched	0	1	0	0	2	0	3
unmodified	0	7	1	3	0	13	24
total	0	8	2	4	6	19	39
Tr 14							
backed	0	0	0	0	1	0	1
truncated	0	0	1	0	4	2	7
truncated & backed	0	0	0	0	1	1	2
truncated & retouched	0	0	0	0	0	1	1
other retouched	0	2	1	0	0	3	6
unmodified	0	16	2	5	3	117	143
total	0	18	4	5	9	124	160

Table 8: Contrasting composition of trash locus 19 and remainder of Tr. 14 assemblage.

	Locus 19		Rest of Tr. 14	
blades	90	77%	96	34%
flakes	21	18%	139	49%
flake production debris*	6	5%	49	17%
total	117	100%	284	100%

*shatter, chunks, cores

Table 9: Composition of 1999 faunal assemblages.

	Trench 11 + 15		Trench 14		Trench 12 + 16	
	weight (g)	number	weight (g)	number	weight (g)	number
total	5325	434	8235	1378	17157	2670
identifiable	2721	255	3890	384	9594	880
unidentifiable	2604	179	4345	994	7563	1790
sheep/goat	448	24	994	166	1623	283
cattle	1520	32	2081	98	5855	223
pig	642	30	629	77	1451	167
canis	30	2	17	5	0	0
cervid	59	4	27	4	330	25
gazelle	8	1	103	6	15	4
equid	0	0	0	0	134	5
medium felid	0	0	0	0	3	2
small felid	0	0	2	1	2	1
lagomorph	0	0	3	3	1	1
rodent	6	16	0	0	7	9
bird	0	0	1	1	0	0
turtle/tortoise	0	0	3	2	42	18
fish	2	2	12	8	36	30
bivalve	22	9	8	3	55	28
gastropod	57	35	10	10	40	30

Table 10: Average bone fragment size.

	Trench 11	Trench 12	Trench 13	Trench 14
Unidentifiable	8.2 gr	3.9 gr	4.7 gr	4.4 gr
Identifiable	15.5 gr	10.6 gr	10.4 gr	9.9 gr

Table 12: Artifact densities in Tr 14.

	trash sequence					trash	trash sequence				room deposits				
	48-52	36-40	41-34	12=23 =39	9		58	57	35=53	26	50	46	44	38	33
volume (m ³)	.641	.233	1.493	3.209	.886	1.638	.541	.381	.769	1.841	1.539	1.197	.49	.396	.087
% screened	100%	100%	100%	50%	0%	0%	100%	100%	60%	40%	100%	100%	100%	100%	0%
bead, stone	0.0	4.3	2.7	0.0	1.1	4.3	3.7	0.0	0.0	0.0	.6	3.3	0.0	0.0	0.0
bead, shell	1.6	0.0	2.7	0.3	1.1	1.2	0.0	0.0	0.0	0.0	.6	0.0	0.0	0.0	0.0
bead, other	0.0	4.3	0.0	0.0	0.0	2.4	1.8	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
pendant, stone	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
figurine	3.1	4.3	0.0	0.0	1.1	0.6	0.0	0.0	0.0	0.5	.6	0.0	0.0	0.0	0.0
sling ball	0.0	4.3	0.0	0.0	0.0	0.0	1.8	7.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0
token	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	.6	0.0	0.0	0.0	0.0
sealing	9.4	17.2	1.3	0.0	0.0	0.6	12.9	2.6	1.3	0.0	.6	0.0	0.0	0.0	0.0
stone vessel	0.0	0.0	0.0	0.0	0.0	1.22	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
spindle whorl	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
loom weight	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
bone tool	0.0	0.0	1.3	0.0	1.1	0.6	0.0	0.0	0.0	0.5	.6	0.0	0.0	0.0	0.0
chipped stone	25.2	40.2	41.5	3.9 ^a	NA	71.43	44.4	47.2	17.1 ^b	14.1	NA	10.0	NA	22.7	NA
grinding stone	3.1	4.3	1.3	0.3	0.0	1.8	1.8	0.0	1.30	3.3	2.6	2.5	20.4	0.0	11.5
celt	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
other clay	1.6	0.0	1.3	0.0	1.1	0.6	0.0	0.0	1.3	0.0	0.0	.8	0.0	0.0	1.7
other stone	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	.54	0.0	0.0	0.0	2.5	0.0

*Locus 39 only, 100% screened.

**Locus 35 only, 50% screened.

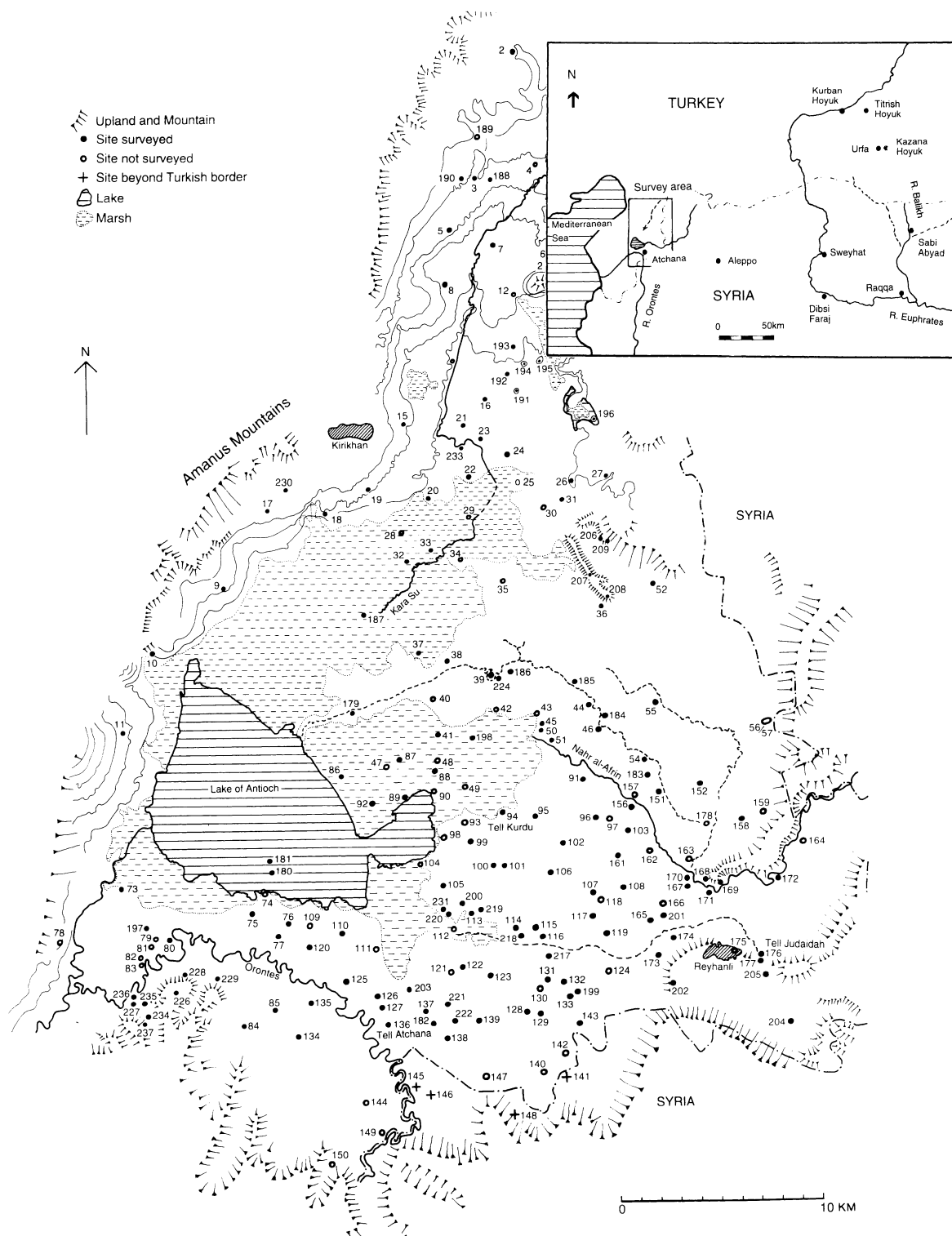


Fig. 1. Location Map - Hatay, the Amuq Valley and Tell Kurdu [AS 94].

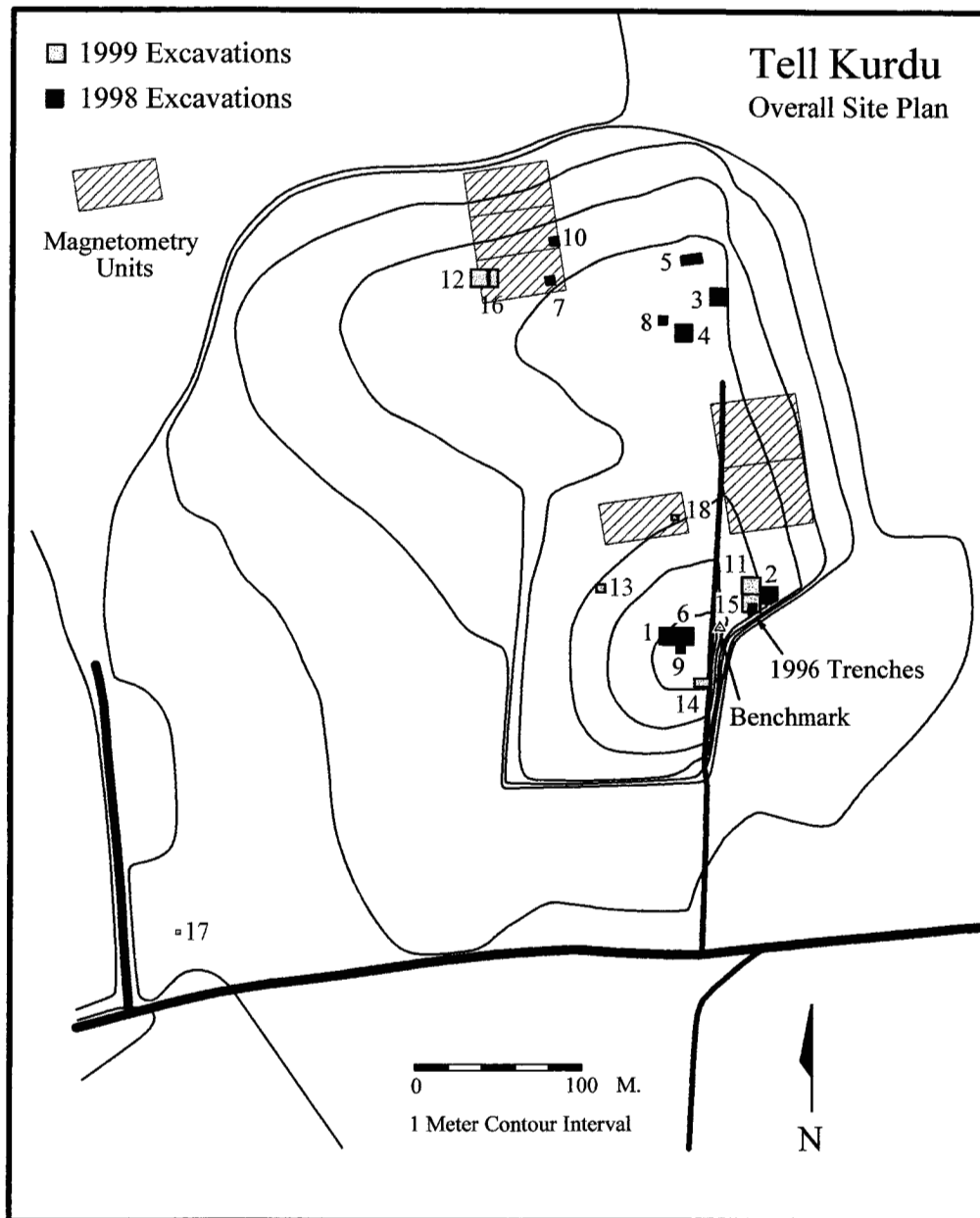


Fig. 2. Tell Kurdu Contour Map with 1996, 1998 and 1999 Trench and Magnetometry Locations.

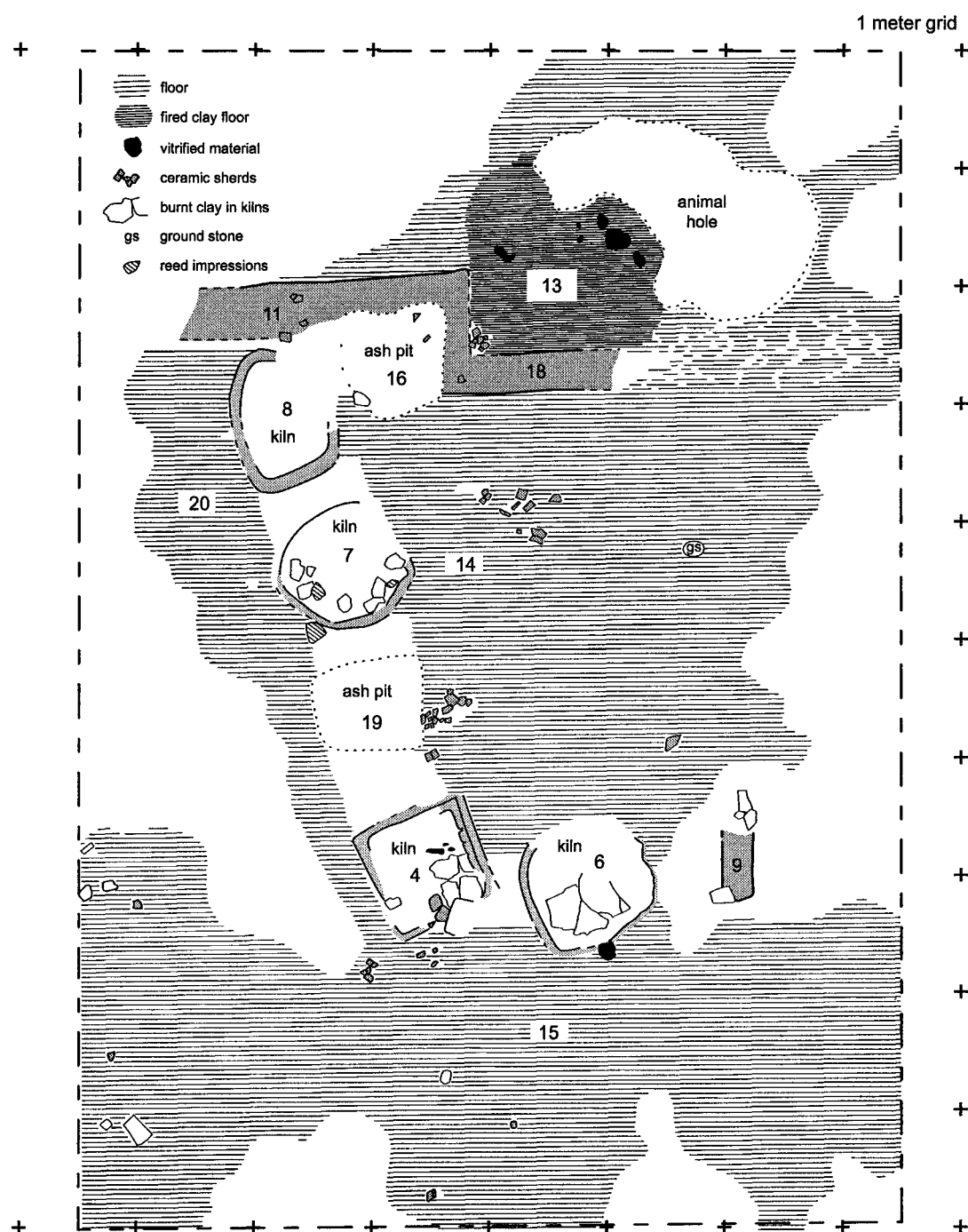


Fig. 3. Tr. 11/15 - kilns.

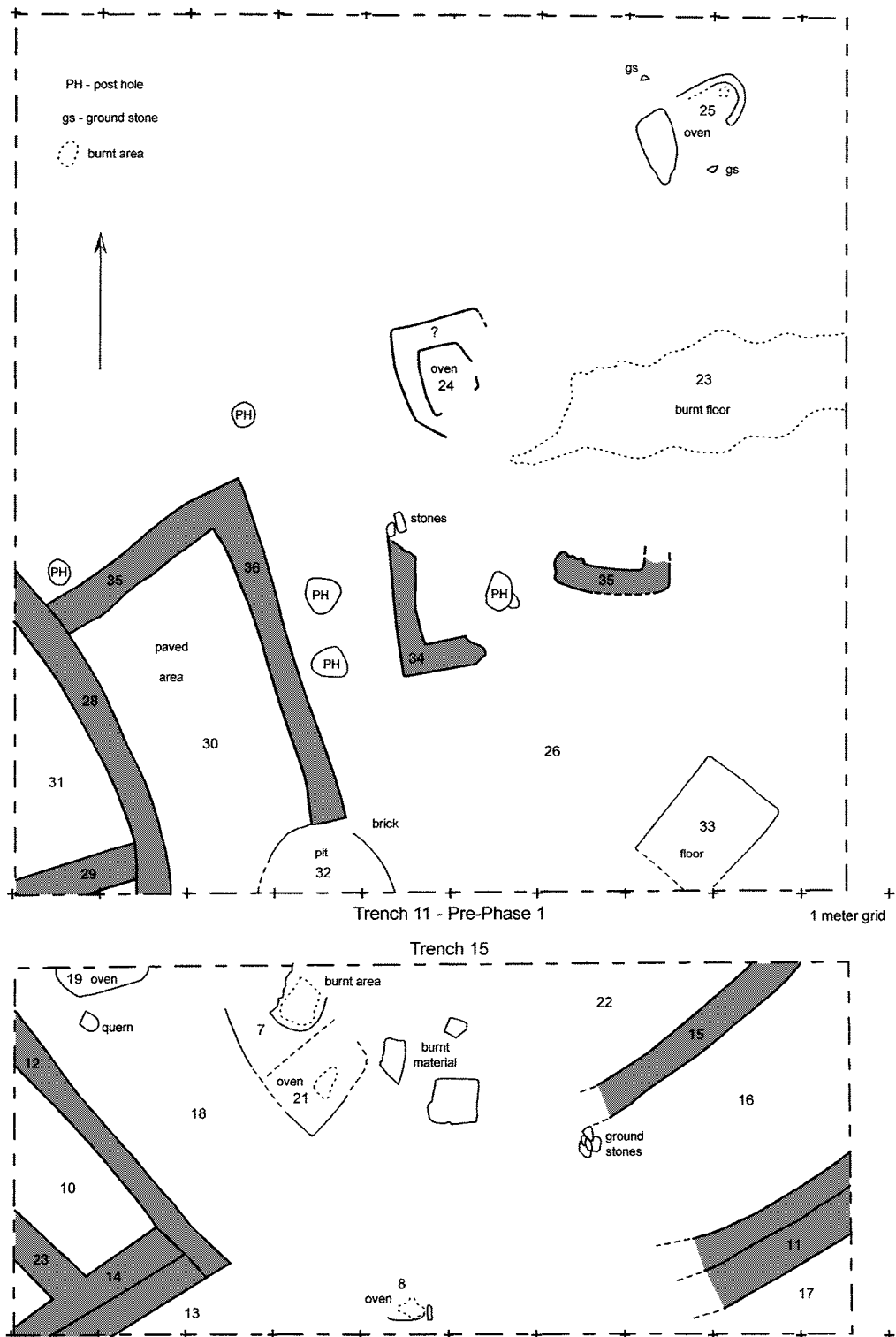


Fig. 4. Tr. 11/15 - phase 2 etc. architecture.

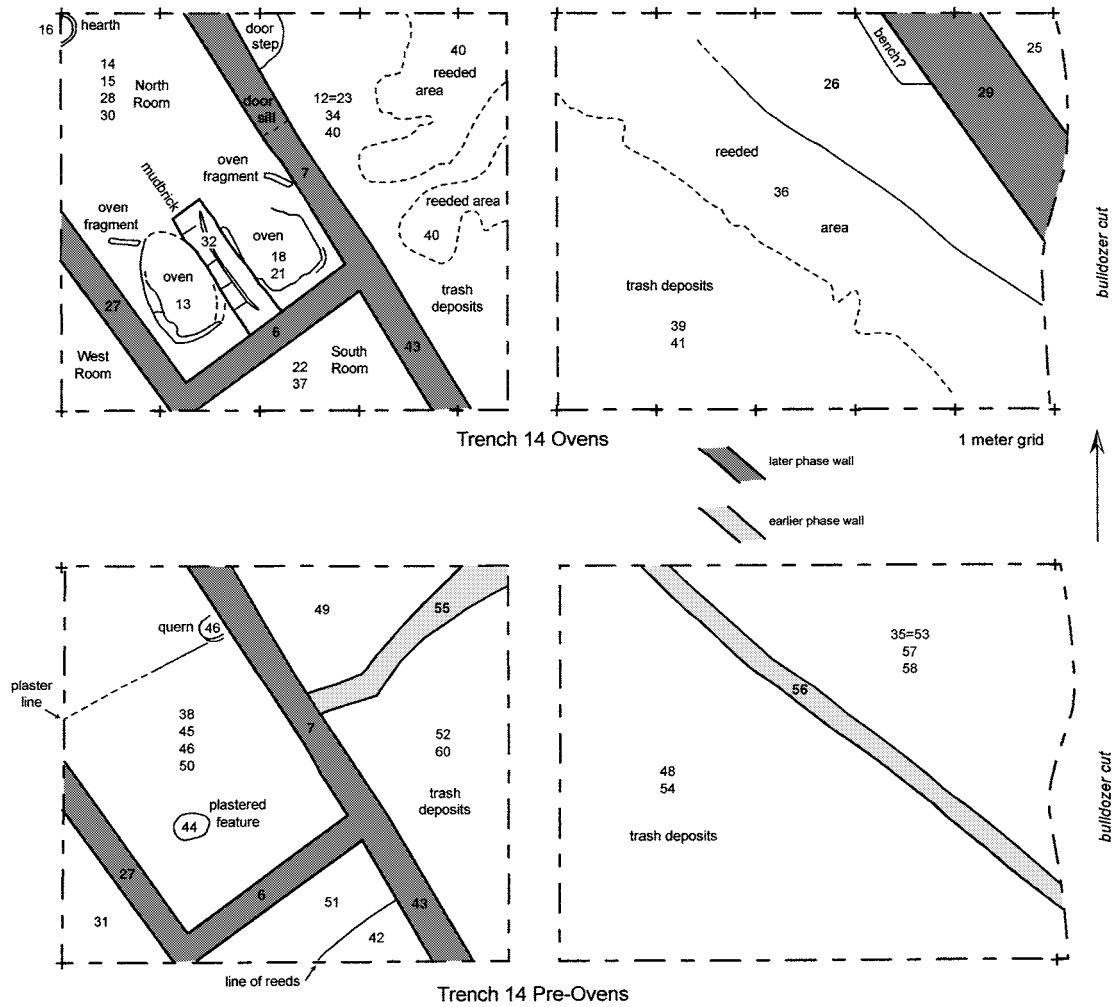


Fig. 5. Tr. 14.

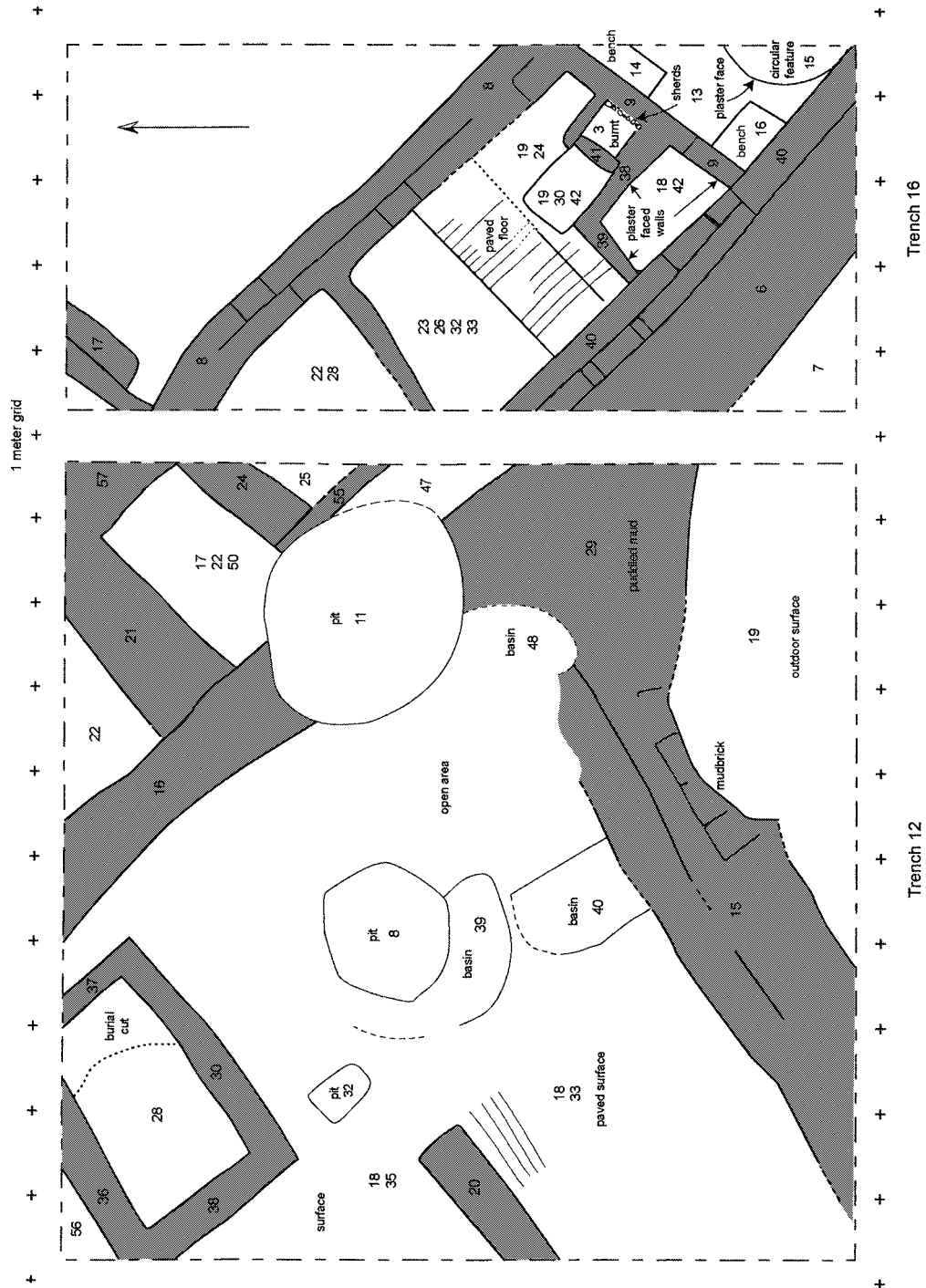


Fig. 6. Tr. 12/16 Architecture.

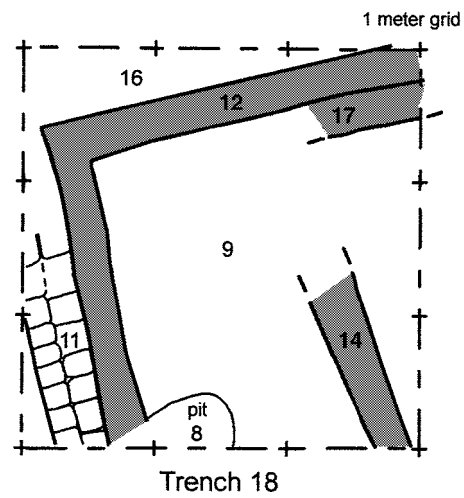


Fig. 7. Tr. 18 Architecture.

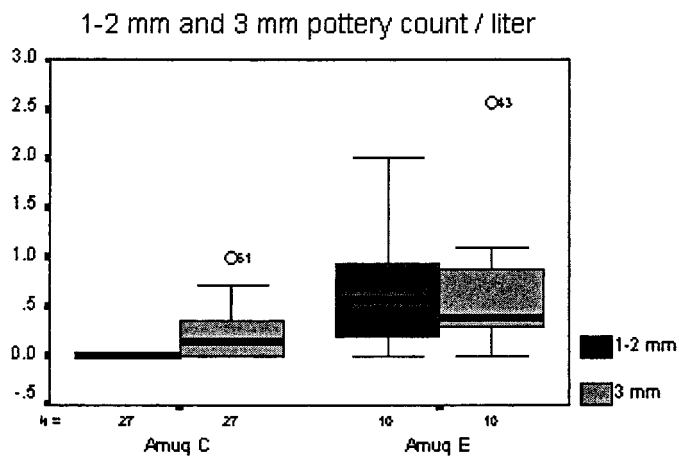


Fig. 8. 1-2 mm and 3 mm Pottery Count/Liter.

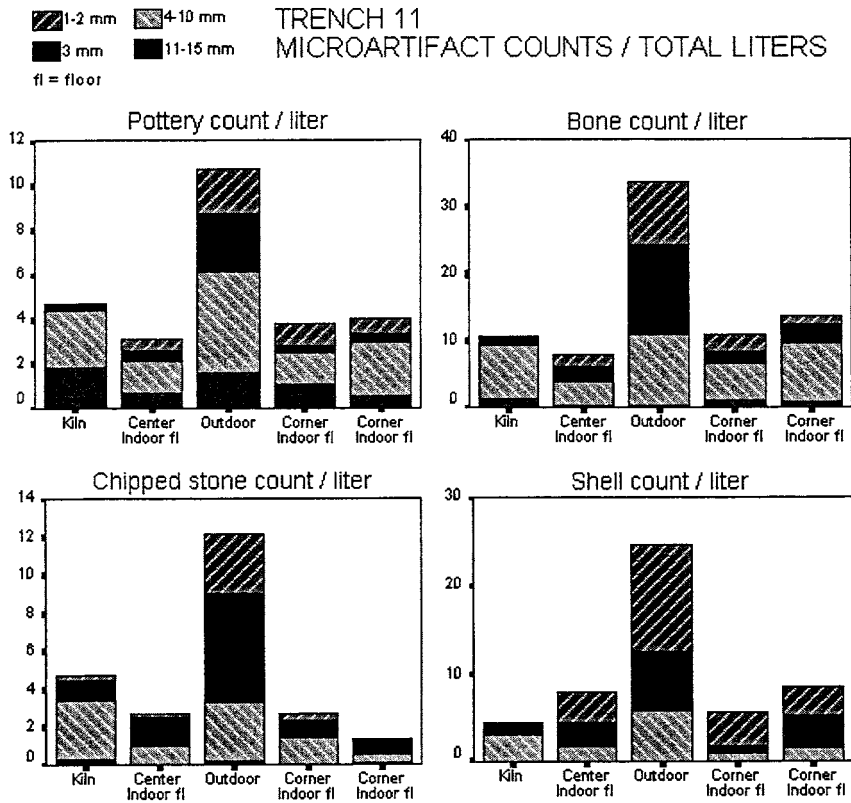


Fig. 9.

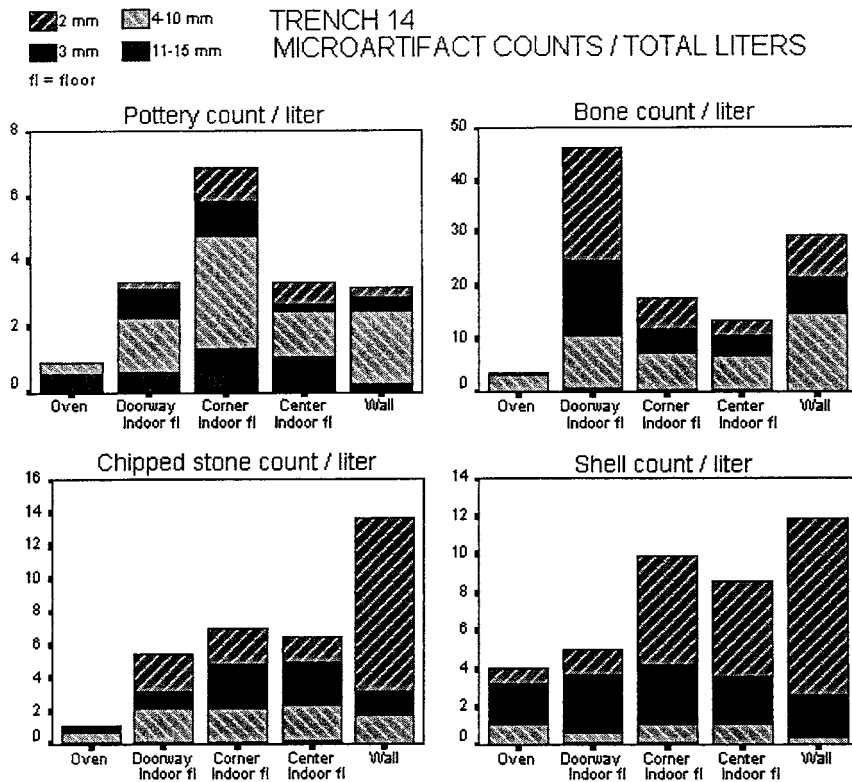


Fig. 10.

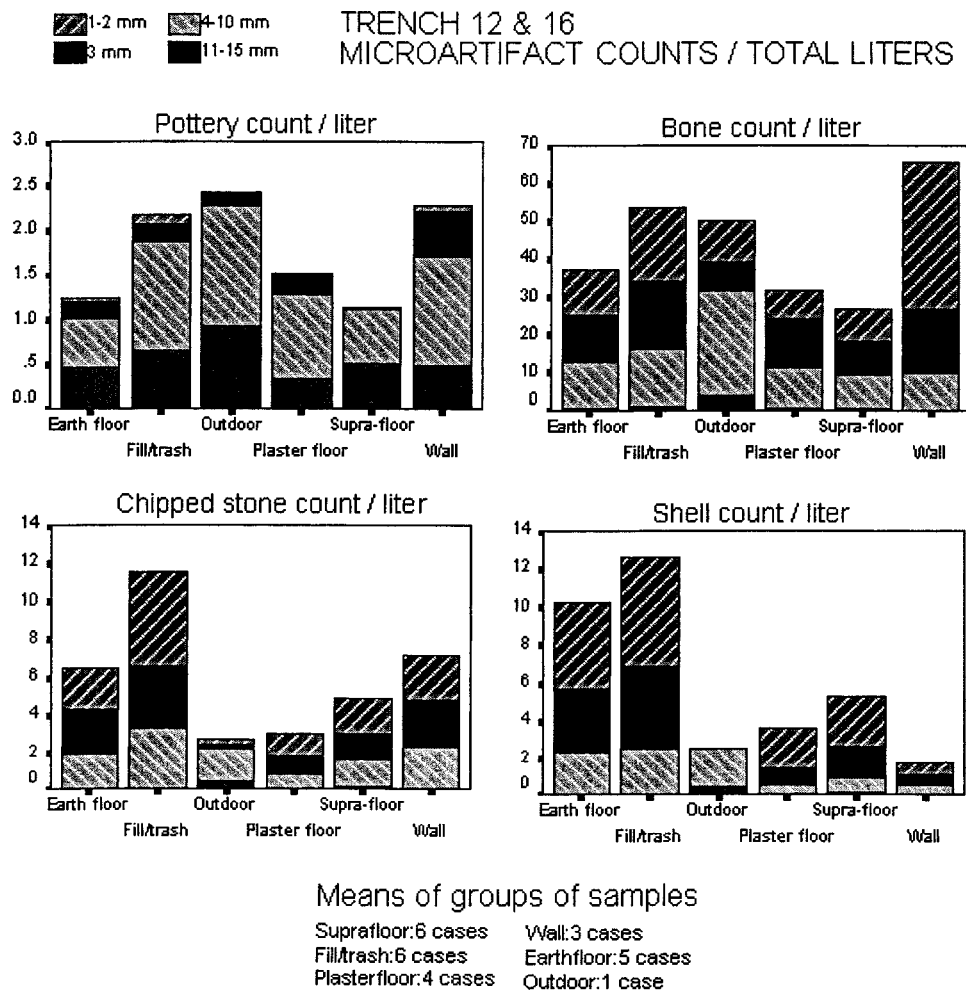


Fig. 11.

Pottery from Amuq C indoor floors
Means of groups of samples
Pottery count / liter

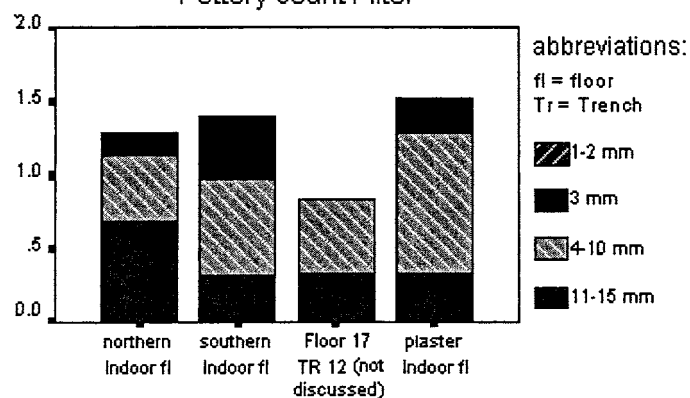


Fig. 12.

Chipped stone from all Amuq C & E Amuq indoor floors
Means of groups of samples
Chipped stone count / liter

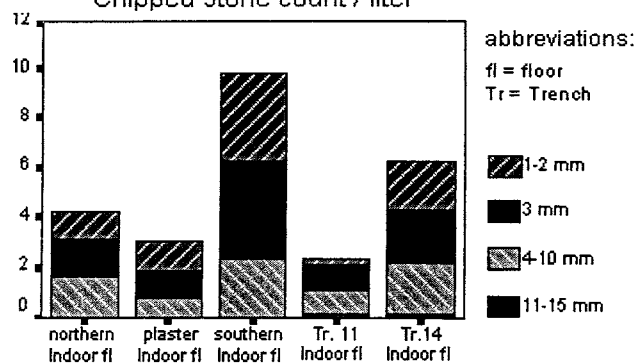


Fig. 13.

1. D=12 cm, 110 degrees; ULM; greenish yellow paste; overfired and very hard; fully oxidized; medium grit temper; black matte paint.
2. D=15 cm, 30 degrees; Ubaid-like monochrome; black matte paint; green over-fired paste; fully fired; sand temper.
3. D=8.5 cm, 50 degrees; bichrome, black and red matte on well oxidized buff/tan paste (ULM medium fabric).
4. D=10 cm, 50 degrees; Phase E bichrome, standard ULM paste; red and black on reddish fabric; fully oxidized; hard, clinky.
5. D=17 cm, 50 degrees; buff simple ware; same fabric as Ubaid-like monochrome, medium variety.
6. dense varicolor grit; orange with slip; somewhat rough, hard; phase E simple ware?
7. D=21 cm, 30 degrees; cooking ware; coarse shell, grit, and vegetable temper (dung?); fully reduced; rough brown exterior.
8. D=26 cm, 32.5 degrees; new cooking pot ware; coarse grit inclusions; red/brown fabric; black core; slipped; gray-orange exterior; bead rim.
9. D=26 cm, 40 degrees; new cooking pot ware; slight bead rim; not fully oxidized; fairly coarse grit; hard; wet-smoothed; pinkish brown exterior; large.
10. D=10 cm; ULM? Solid black paint on exterior; oxidized; medium concentration of large grits; buff orange fabric.
11. D=@25 cm, <20 degrees; simple cooking ware; fully fired; orange fabric; medium concentration of varicolor mineral; yellow slip.
12. D=12 cm, 80 degrees; buff simple ware; fully oxidized, small white grit inclusions (calcite/sand); light tan paste, yellow-greenish buff slip (self-slip?).
13. D=8 cm, 140 degrees; buff simple ware; multi-colored grit inclusions (limestone, basalt); slightly gray core; mostly oxidized. Slightly broken lip.
14. D=6.5 cm, 170 degrees; Ubaid-like monochrome, clinky variety; black paint on green/yellow slip; fine, well-levigated clay; fully oxidized; no visible inclusions.
15. D=34 cm, 60 degrees; Ubaid-like monochrome, medium; reddish exterior; thick red slip with limestone apparently; heavy concentration varicolor grit; slight graying at core.
16. D=16 cm, 30 degrees; dark-faced burnished ware; burnished both sides, faded interior burnish; coarse grit temper, fully reduced.
17. D=? Streaky red burnish exterior, plain light brown interior, medium sand, oxidized.
18. D=7 cm, 50 degrees; DFBW; fine black burnish; brown paste with medium mineral inclusions; burnished on interior lip down to neck; exterior burnished completely.
19. D=5 cm, 67.5 degrees; fully reduced; coarse black fabric; probably sand temper.
20. Impressed body sherd, probably with reed; oxidized, fully fired paste; sand temper.

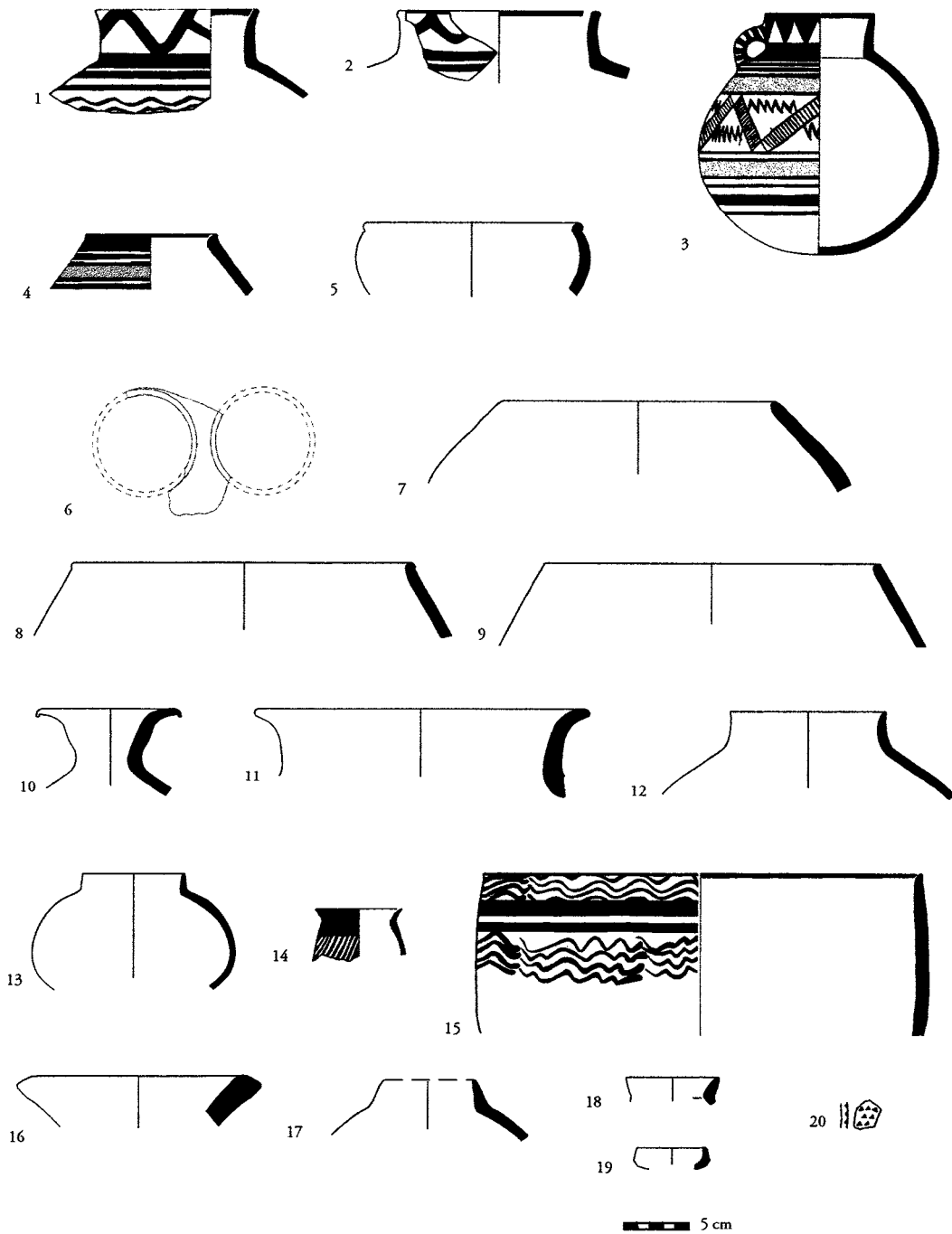


Fig. 14. Kurdu Ceramics

1. D=35 cm, 55 degrees; local painted ware (Halaf style); sand tempered, oxidized.
2. D=32 cm, 200 degrees; local painted ware (Halaf related); oxidized; sand tempered.
3. D=42 cm, 30 degrees; DFBW; exterior black burnish to line; interior black burnish on rim to line; core mostly reduced, with oxidized interior edge; fine mineral temper.
4. D=41 cm, 35 degrees; DFBW; coarse heavy fabric with voids (from shell?); grit temper; cord impression on exterior neck; streaky brown burnish only on interior lip, unfinished below lip and on exterior.
5. D=20 cm, 40 degrees; monochrome painted with external cream slip, black paint; interior possibly painted but lost (fugitive paint); fully oxidized pinkish buff paste; medium concentration sand/mineral inclusions.
6. D=7 cm, 70 degrees; dark-faced burnished ware; black surface, reduced interior half; oxidized exterior half; burnish on slip; all exterior burnished; interior burnished to line from top; heavy concentration small grits (sand).
7. D=9 cm, 110 degrees; dark-faced burnish ware (wiped burnish?); heavy laquer-like finish; jet black exterior on slip; burnish marks visible, horizontal strokes; oxidized; red/brown fabric; mostly very fine with a few large inclusions (probably grog); probably sand tempered; interior burnish from lip to mark; all exterior burnished.
8. D=11 cm, 40 degrees; dark-faced burnished ware; streakly black and light brown; tool marks/burnishing strokes clearly visible, generally stroked top left to bottom right; interior burnish from lip to mark; gray below; light brown, fully oxidized; very fine, well-levigated; no visible inclusions; probably jar neck.
9. D=11 cm, 75 degrees; DFBW; fine black finish, except below line on interior; fully reduced; few inclusions; fine paste.
10. D=16 cm, 45 degrees; local painted ware; orange fabric; light gray core; black paint; medium sand temper.
11. D=14 cm, 55 degrees; old cooking ware; black/gray exterior; some reddening and burning on inside; fully fired, surface reduction; light grit inclusion (sand/limestone). Slight bulb at interior neck join; slightly flattened top.
12. D=26 cm, 30 degrees; DFBW; interior black burnish; exterior black burnish to line; gray fabric; fully reduced; relatively coarse with grit, shell, and short chaff (dung?) temper.
13. D=21 cm, 30 degrees; DFBW; interior black burnish below line; exterior black burnish above line; brown fabric; gray core; crumbly, light paste; light concentration medium sized grits (sand).
14. D=19 cm, 30 degrees; DFBW (wiped burnish?); exterior reddish/gray burnish on top; interior blackened above line, gray below; coarse hard fabric; fully oxidized with light brown paste; medium concentration fine grit.
15. D=14 cm, 30 degrees; dark-faced burnished ware (wiped burnish?); red burnished, red paste; sand temper.
16. D=9 cm, 100 degrees; dark-faced burnish ware (wiped burnish?); burnished on brown/red exterior wash; plain dark gray interior; light gray fabric with light buff exterior; medium concentration medium size grits (sand).
17. D=?, <10 degrees (stance uncertain); Red-wash ware; orange/red exterior, fully oxidized exterior, reduced interior; brown/gray fabric; medium grit temper. 18cm diameter at neck interior.
18. D=11 cm, 50 degrees; red wash ware; orange buff paste; coarse grit with pebble inclusions; fully fired; badly corroded, pitted surface. From post-occupation pit (probably phase D).
19. D=46 cm, 25 degrees; dark-faced unburnished ware, 2nd variety; dark gray/brown paste, with gray core; coarse grit (probably sand).
20. D=16 cm, 110 degrees; dark-faced unburnished ware, 2nd variety; coarse dark brown/black fabric; sand temper; fully reduced.
21. D=38 cm, 20 degrees; dark-faced unburnished ware, 2nd variety; red fabric; oxidized surface, reduced core; heavy concentration small white grits (sand).
22. D=31-32 cm, 30 degrees; old style cooking ware (dark-faced unburnished ware, 2nd variety); wet-smoothed, gray-black exterior; rough gray black interior, mostly reduced; coarse grit/pebble temper.
23. D=34 cm, 70 degrees; dark-faced unburnished ware, 2nd variety; very coarse, irregular, hard rough surface; reduced; dark brown with black interior edge. Coarse grit with visible coil construction.
24. D=26 cm, 90 degrees; old style cooking ware (dark faced unburnished ware, 2nd variety); heavy dark fabric, gray black exterior surface; fully reduced; fine sand inclusions; sandpaper like texture.
25. Halaf-painted body sherd; lustrous red paint; orange well-levigated clay; light sand; creamy slip; fully fired, well-oxidized.
26. D=11 cm, 100 degrees; light brown/buff paste; oxidized; medium grit (sand); finger smoothing marks on sides (vertical; angled slightly right to left).

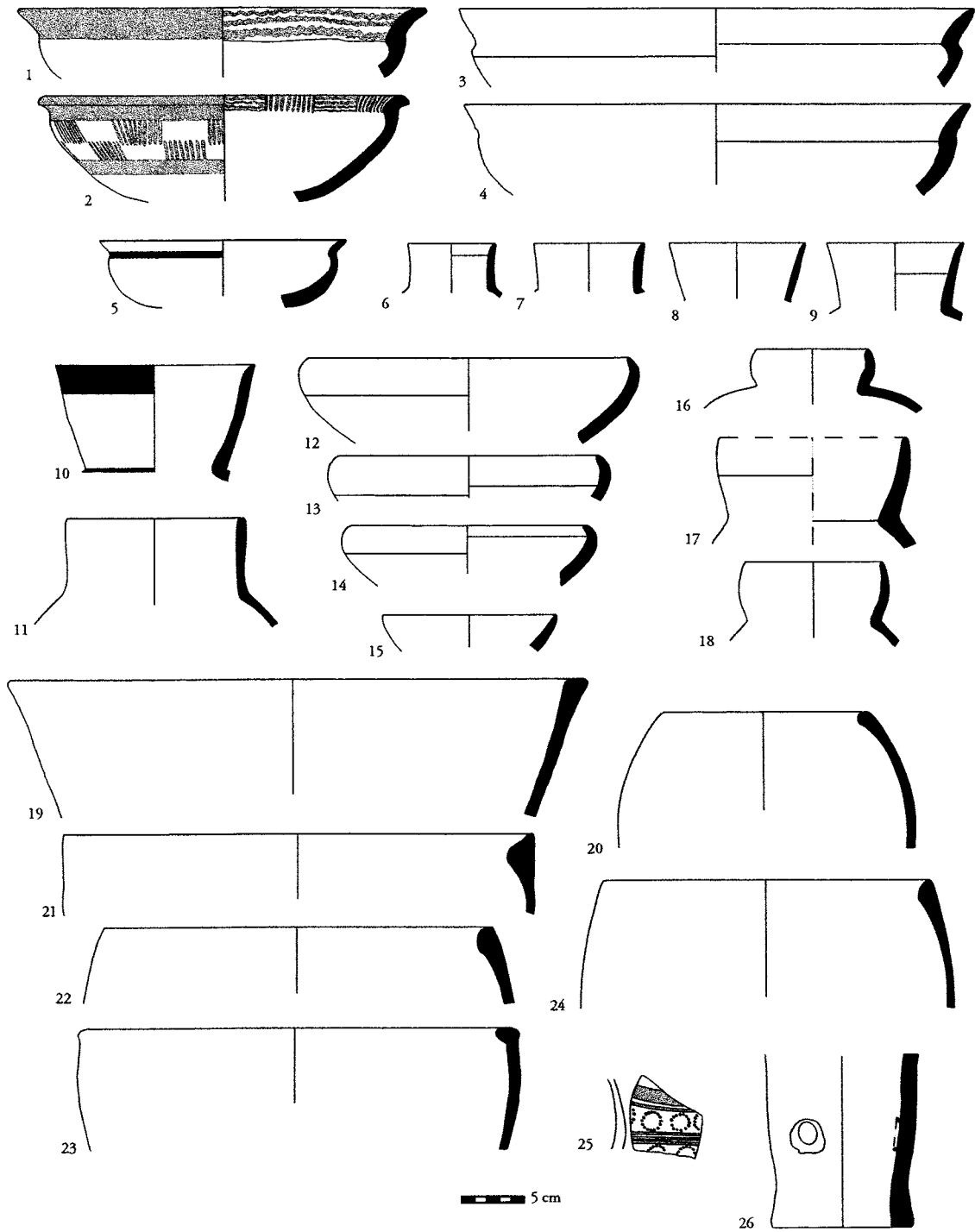


Fig. 15. Kurdu Ceramics

1. Seal, serpentine; TK 2686, Tr 15/1.
2. Seal, serpentine; TK 4260, Tr 11/21.
3. Seal, serpentine; TK 3859, Tr 18/7.
4. Sealing, seal impression obverse, string and cloth impression reverse, baked clay; TK 4986, Tr 14/34.
5. Sealing, finger marks from modeling obverse, impression of vessel rim reverse, baked clay; TK 4941, Tr 14/49.
6. Sealing, finger impression obverse, textile impression reverse, baked clay; TK 4100, Tr 14/35.
7. Sealing, plain obverse, impression of stick or reed, and string reverse, baked clay; TK 4496, Tr 14/36.
8. Baling tag, plain obverse, reed or stick impressions reverse, baked clay; TK 4708, Tr 16/5.
9. Baling tag, string or reed impressions both faces, baked clay; TK 4498, Tr 14/40.
10. Sealing, damaged obverse, string impressions reverse, baked clay; TK 3958, Tr 16/5.
11. Whorl (or token?) baked clay; TK 3152, Tr 14/10.
12. Token, spherical, baked clay; TK 3075, Tr 12/18.
13. Token, conical, baked clay; TK 2763, Tr 14/4.
14. Token, spherical, baked clay; TK 3570, Tr 11/21.
15. Token, conical, baked clay; TK 2615, Tr 11/1.
16. Sling ball (or token?), baked clay; TK 3425, Tr 12/26.

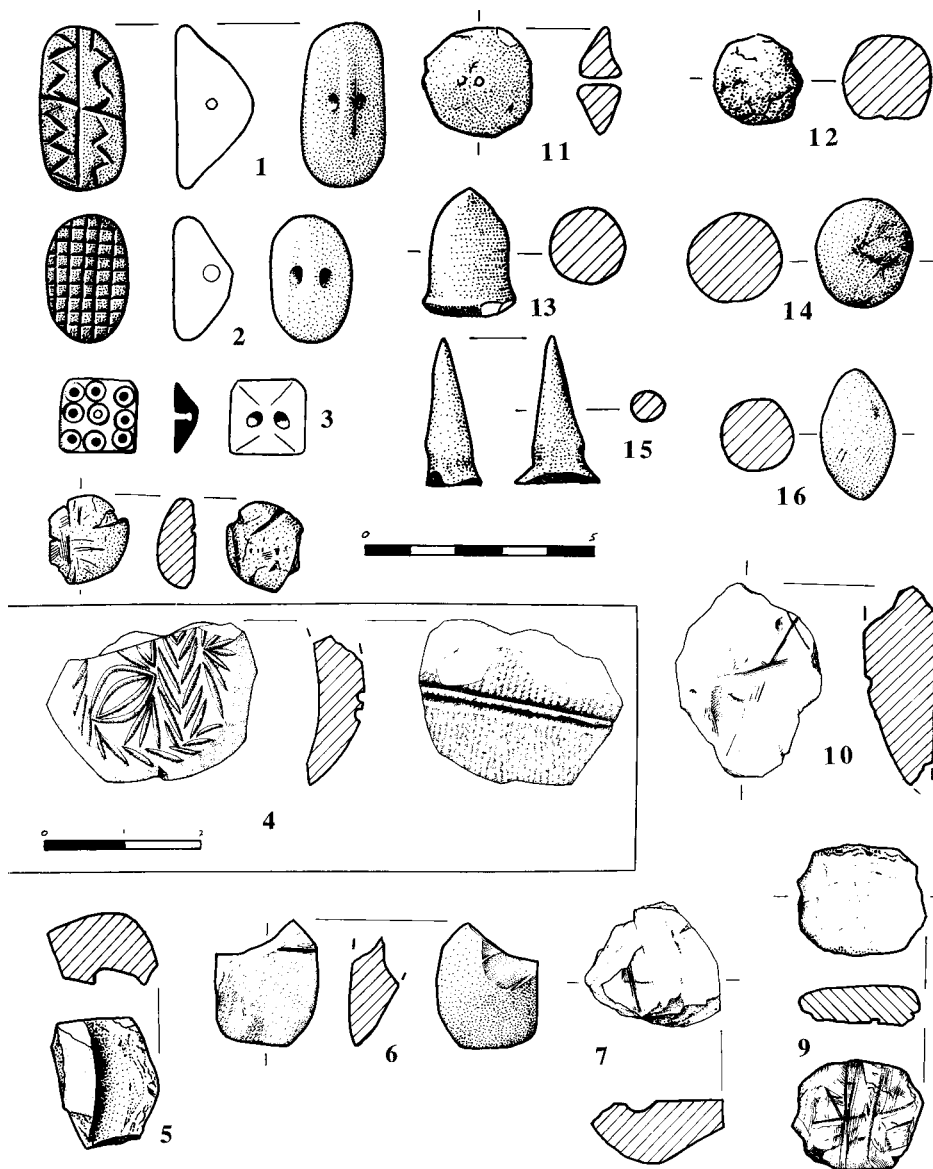


Fig. 16. Kurdu Seals, Sealings, and Tokens

1. Anthropomorphic figurine, head with coffee bean eyes, baked clay; TK 2666, Tr 11/5.
2. Anthropomorphic figurine, bust without head, baked clay; TK 3105, Tr 14/10.
3. Anthropomorphic figurine, bust without head, baked clay; TK 1964, Tr 14/50.
4. Anthropomorphic figurine, seated figure legs outstretched, head and arms missing, baked clay with red painted stripes; TK 2851, Tr 13/6.
5. Anthropomorphic figurine, baked clay; TK 4501, Tr 14/33.
6. Animal figurine, baked clay; TK 3071, Tr 12/19.
7. Animal figurine, baked clay; TK 4282, Tr 11/26.
8. Animal figurine, serpentine; TK 4106, bulldozer section, south mound.
9. Bead, crescent with double perforation, shell (?); TK 3707, Tr 15/3.
10. Bead, disc, unidentified stone; TK 4564, Tr 14/41.
11. Bead, disc, baked clay; TK 4071, Tr 14/28.
12. Bead, tubular, dentalium segment; TK 4009, Tr 14/23.
13. Bead, segmented, serpentine; TK 3269.1, Tr 14/19.
14. Bead, double pierced oval, marble; TK 4398, Tr 12/50.
15. Bead, tubular, unidentified stone; TK 3168.1, Tr 14/10.
16. Pendant, zoomorphic, serpentine; TK 2433, Tr 12.
17. Pendant, zoomorphic, serpentine; TK 4056, Tr 14/25.
18. Pendant, double axi, serpentine; TK 4406, Tr 14/26.
19. Bead, cordiform, serpentine; TK 4235, Tr 11/22.
20. Bead, dentalium segment; TK 4030, Tr 14/26.
21. Pendant, stemmed tear-drop with incised geometric decoration, unidentified stone; TK 3719, Tr 15/2.
22. Pendant, stemmed tear-drop with incised geometric decoration, quartz; TK 3097, Tr 12/18.
23. Bead, disc, baked clay; TK 3157, Tr 14/10.

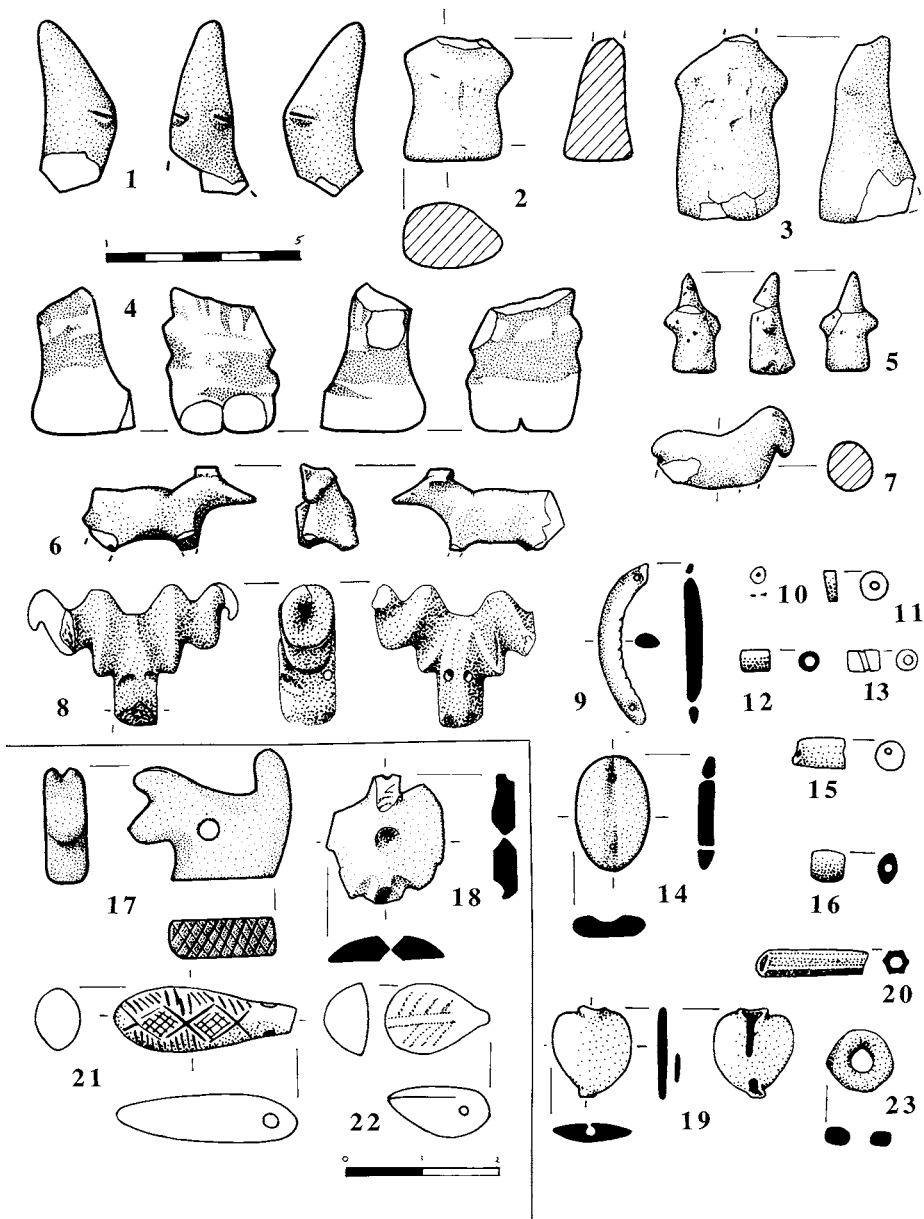


Fig. 17. Kurdu Figurines, Beads, and Pendants.

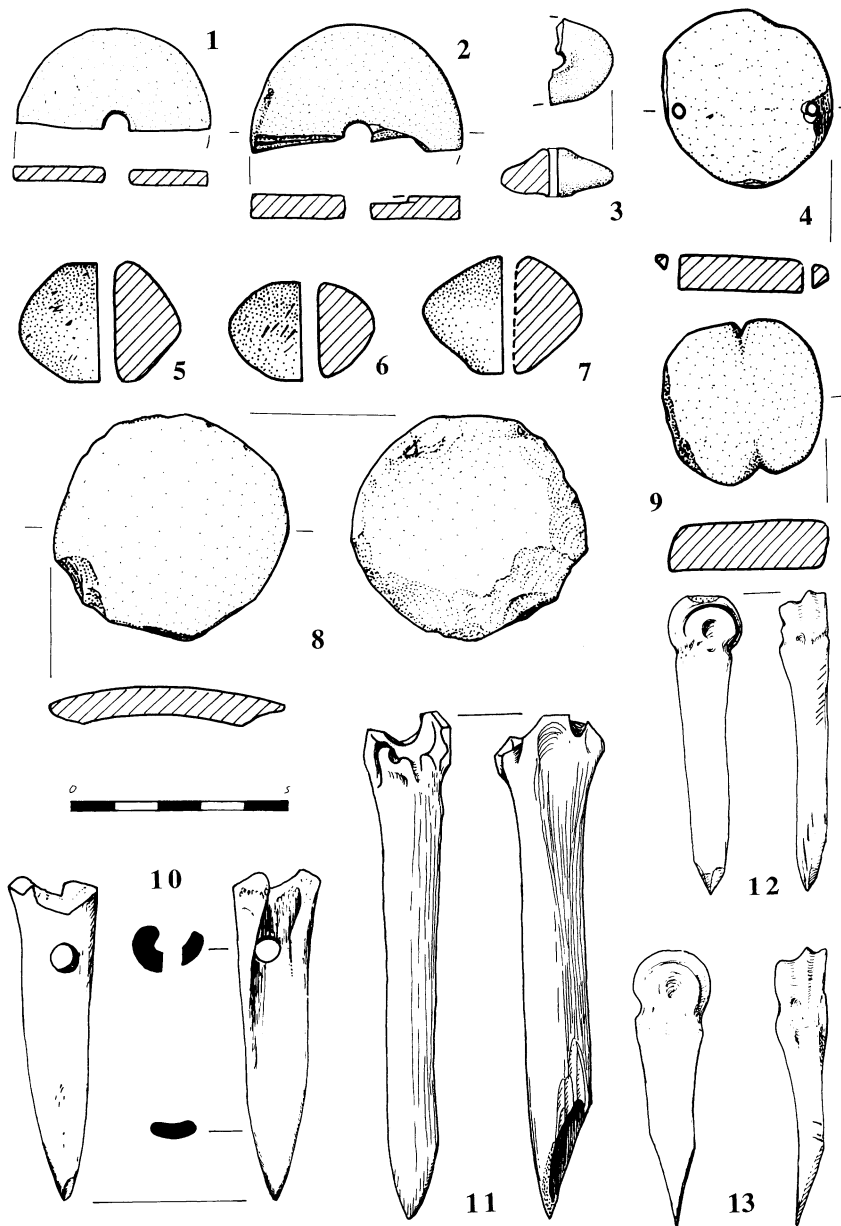


Fig. 18. Kurdu Clay Discs and Bone Tools.

1. Whorl made from ground and pierced sherd; TK 3028, Tr 12/11.
2. Whorl, flat disc, made from ground and pierced sherd; TK 2665, Tr 11/5.
3. Whorl, collared disc, baked clay; TK 3559, Tr 11/21.
4. Disc, made from ground sherd, double pierced; TK 4375, Tr 12/11.
5. Whorl or loom weight, spherical, baked clay; TK 4243, Tr 11/22.
6. Whorl or loom weight, flattened spherical, baked clay; TK 4216, Tr 11/20.
7. Whorl or loom weight, spherical, baked clay; TK 5112, Tr 14/57.
8. Disc chipped from sherd; TK 3026, Tr 12/11.
9. Net weight, made on sherd; TK 3028, Tr 12/11.
10. Toggled point, formed from split shaft, bone; TK 3382, Tr 12/18.
11. Awl, point formed by oblique cut across shaft, bone; TK 4889, Tr 11/23.
12. Awl, point formed by beveled facets from all sides, bone; TK 3038, Tr 12/14.
13. Awl, point circular cross-section formed by polish, bone; TK 4373, Tr 12/17.

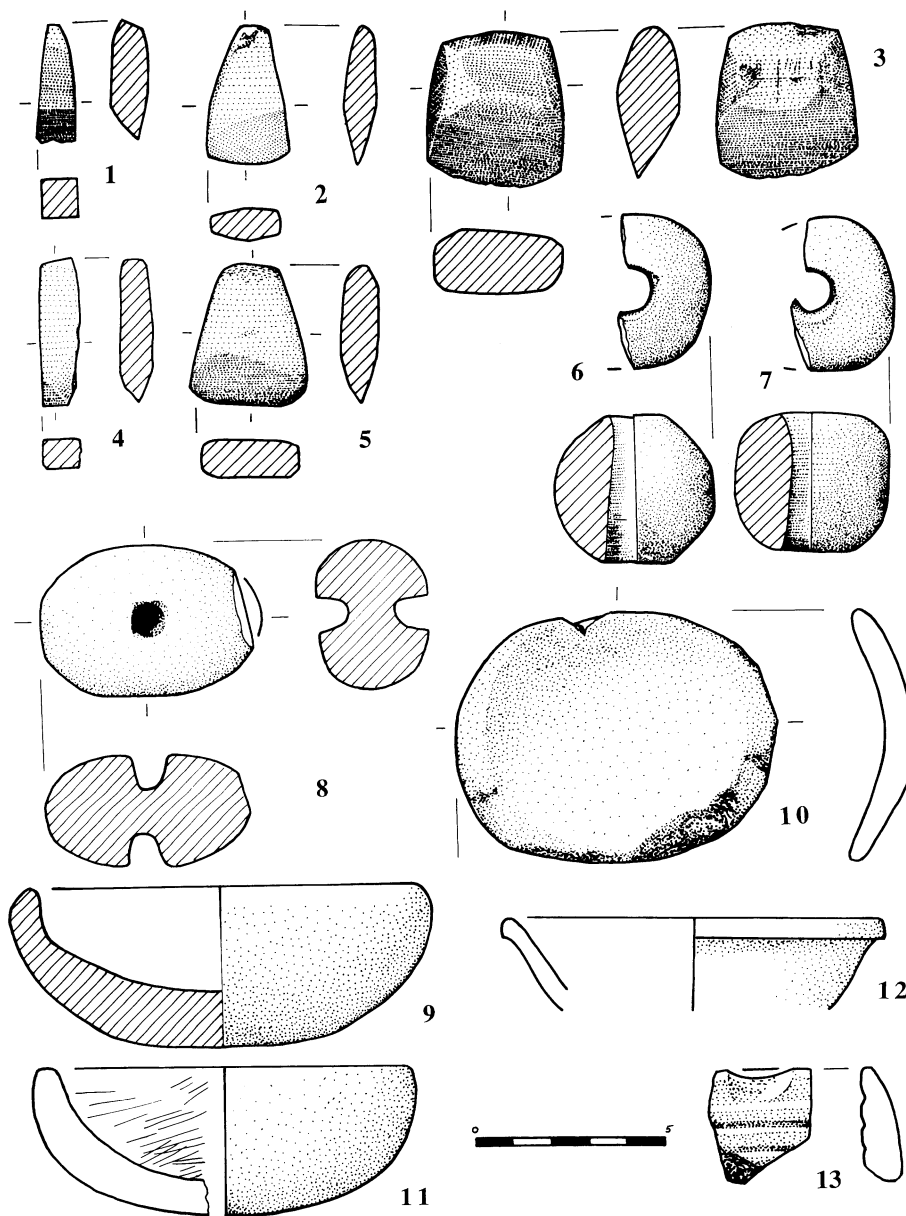


Fig. 19. Kurdu Celts, Stone vessels, and Other Stone Artifacts

1. Celt, serpentine; TK 2772, Tr 14/4.
2. Celt, unidentified stone; TK 3560, Tr 11/21.
3. Celt, unidentified stone; TK 2488, Tr 12/11.
4. Celt, reworked from larger celt, unidentified stone; TK 4393, Tr 12/111.
5. Celt, unidentified stone; TK 2468, Tr 12/7.
6. Mace head, basalt (?); TK 2606, Tr 11/1.
7. Mace head, haematite; TK 2704, Tr 14/1.
8. Unfinished hammer or bow drill handle, limestone; TK 2800, Tr 14/10.
9. Bowl, serpentine; TK 2455, Tr 12/3.
10. Shallow dish, made from recut vessel, serpentine; TK 3277, Tr 14/19.
11. Bowl, unidentified stone; TK 4361, Tr 12/11.
12. Bowl with beaded rim, serpentine; TK 3475, Tr 12/35.
13. Bowl fragment, orientation not clear, serpentine; TK 3172, Tr 14/15.

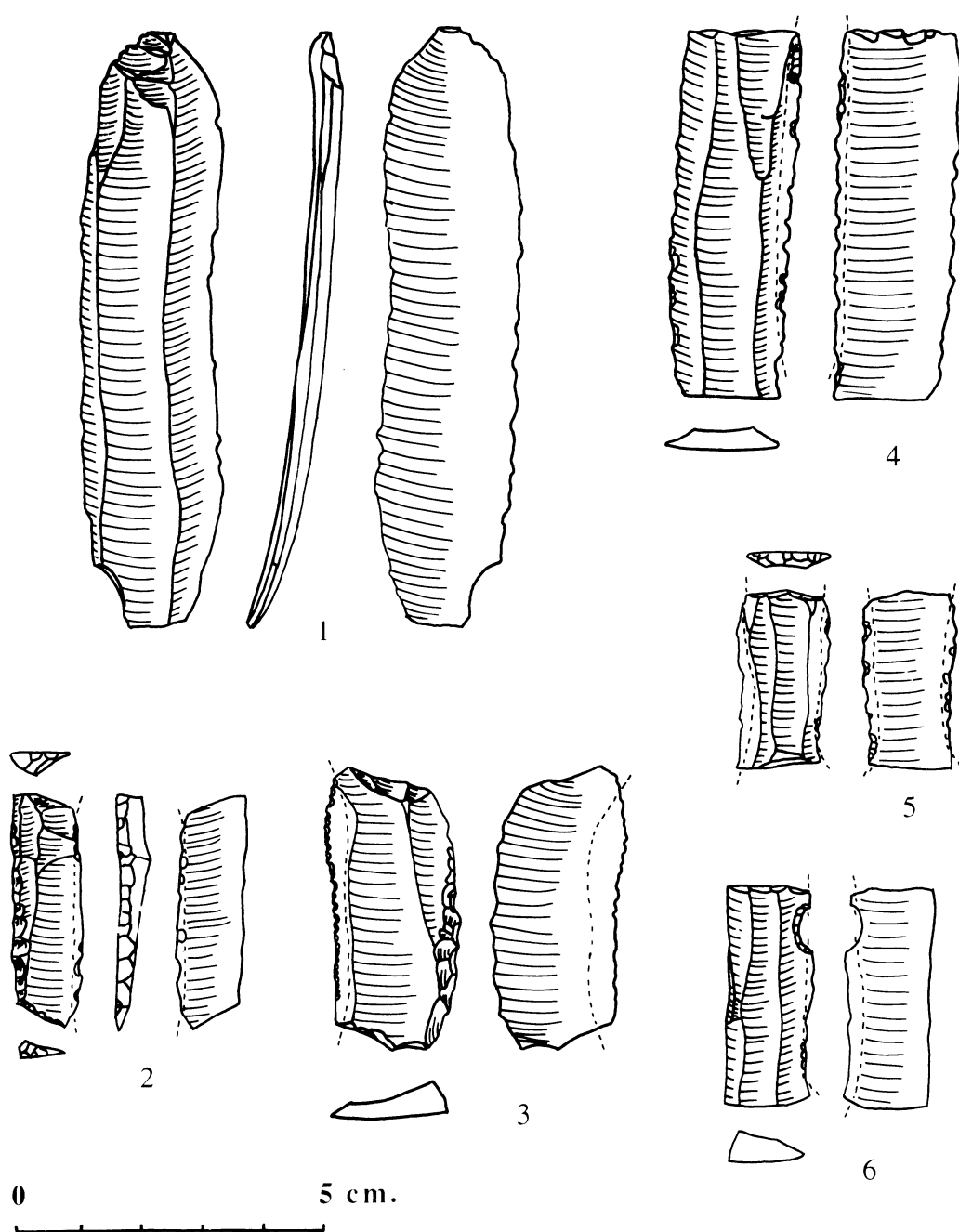


Fig. 20. Kurdu Chipped Stone.

1. blade.
2. bitruncated and backed glossed blade.
3. bitruncated glossed blade.
4. truncated glossed blade.
5. truncated double glossed blade.
6. truncated glossed blade, recycled as notched blade.



Plate 1.

THE THIRD SEASON OF ARCHAEOLOGICAL SURVEY AT ZİYARET TEPE, DİYARBAKIR PROVINCE, TURKEY, 1999

Timothy Matney and Andrew Bauer

This report describes the third season of archaeological fieldwork undertaken in August of 1999 by the authors at the Late Bronze-Iron Age (Middle and Neo-Assyrian) urban centre of Ziyaret Tepe in the Diyarbakır Province of southeastern Turkey. Previous surface and subsurface exploration of the settlement in 1997 and 1998 generated a topographic plan of the site, a series of pottery distribution maps, a settlement history and preliminary subsurface magnetic field gradient survey maps for portions of the High Mound and Lower Town (see Matney 1998; Matney and Somers 1999; Matney in press). The long-term objectives of the Ziyaret Tepe archaeological project are: (1) to document the archaeological sequence of occupation in the region of the Upper Tigris to be flooded by the construction of the İlisu Dam as part of the GAP development project in southeastern Turkey; (2) to study town planning during the Assyrian urban phase of Ziyaret Tepe during the Late Bronze and Iron Ages focussing on both residential architecture and public buildings; (3) to reconstruct the regional distribution of natural and human resources, ancient land-use patterns and to examine the environmental impact of Assyrian urbanization. This regional focus will contextualize the urbanization process at Ziyaret Tepe and provide insight into relationships between the urban settlement in its immediate hinterland.

As detailed below, the 1999 season of archaeological survey at Ziyaret Tepe consisted of a short two-week season collecting magnetometry data to further our subsurface mapping efforts started in 1998 (Matney and Somers 1999). During this time we were able to map a total of 5.12 hectares of the Lower Town in an area (Mag-E) adjacent to one of our previous subsurface mapping areas (Mag-D) where a segment of the city wall, as well as parts of several structures had been recorded in 1998. This area also represents a region of the site which is threatened by the encroachment of modern irrigation-driven cotton production. The initiation of cotton farming in the southeast corner of the site prompted our decision to concentrate work in that region in order to document as much of the ancient city as possible prior to further expansion of the irrigation (see Figure 3). Our team for this season consisted of the authors and two specialists, Nahide Aydın and Ibrahim Kars, from Middle Eastern Technical University who were responsible for collecting the magnetic field data and data processing. Our work was greatly aided by the generous assistance of our government representative, Nevin Soyukaya of the Diyarbakır Museum and by the Director of the Diyarbakır Museum, Necdet İnal.

Funding for the 1998-1998 magnetometry project was provided by the American Research Institute in Turkey, the American Philosophical Society and the National Geographic Society.

This report consists of three parts: (1) a brief description of Ziyaret Tepe, its occupational sequence and historical significance; (2) a summary of previous archaeological work at the site; (3) a description of the 1999 project and preliminary results from the subsurface magnetic field gradient survey.

Site Description, Occupational Sequence and Historical Significance

Ziyaret Tepe is a large multi-period mounded site located on the south bank of the Tigris River, just east of the modern town of Tepe and twenty kilometres west of the confluence of the Tigris and Batman Rivers (Figure 1). Ziyaret Tepe commands an impressive view of the countryside situated atop a broad, low terrace overlooking the wide Tigris flood plain (Figure 2). Previous archaeological survey completed in the late 1980s (Algaze et al. 1991) shows dozens of archaeological sites along the river terraces in the upper Tigris region emphasizing the importance of the river as a resource and communication line throughout antiquity. The site of Ziyaret Tepe consists of two basic morphological units: a High Mound or acropolis and a surrounding Lower Town (see Figure 3). The High Mound is located at the northern edge of the site and rises twenty-two metres above the surrounding terrain. It is approximately three hectares in extent. A significant depression in the northern edge of the High Mound marks the probable location of an important gate leading onto the citadel. Surrounding the High Mound is an extensive Lower Town, spreading out for almost thirty hectares to the west, south and east of the High Mound. The topography of the Lower Town at Ziyaret Tepe is generally flat, although a slight rise at the southern edge of the lower town marks the line of an ancient city wall. Likewise, the western edge of the lower town is marked by a significant wadi and the eastern edge by a more moderate slope, both perhaps representing the remains of the city's ancient fortifications.

Surface survey in 1997 provided evidence for an occupational history spanning the late Neolithic/early Chalcolithic through the early Islamic periods (c. 5500 BC - AD 800), with the heaviest concentration of the material being Late Bronze Age and Iron Age in date (Matney 1998: 17-18). The distribution of late Neolithic/early Chalcolithic sherds suggests that Ziyaret Tepe at this time was a small village. No remains of the late Chalcolithic or Early Bronze Age were noted during the 1997 surface surveys. In contrast, the site appears to have expanded considerably in the early part of the Middle Bronze Age, when the entire High Mound appears to have been occupied. In the second half of the 2nd millennium BC, with the expansion of the Middle Assyrian empire into the Upper Tigris basin (Kessler 1980) during the Late Bronze Age, the site underwent substantial change. Occupation expanded for the first time into large portions of the lower town creating a small urban centre, approximately thirty-two hectares in extent. Occupation at the site retrenched during the Early Iron Age when only a few local Early Iron Age sherds are only found on the High Mound. The lower town appears abandoned during this period.

In contrast, the following Late Iron Age (Late or Neo-Assyrian period) appears to have

been a time of rapid reurbanization at Ziyaret Tepe. Historical sources suggest that this reurbanization may have taken place in the second half of the 9th century BC (Liverani 1992). Late Assyrian style pottery was found across both the high mound and the full extent of the lower town up to the limits of the fortifications noted above. Presumably, this occupation terminated during or sometime after the collapse of the Late Assyrian empire in the late 7th century BC. There is no evidence of occupation again at Ziyaret Tepe until the late Roman period. Only sporadic subsequent occupations of late Roman, Sasanian and early Islamic date were detected over limited portions of the lower town, perhaps representing isolated farmsteads sheltered under the impressive citadel mound of Ziyaret Tepe.

In terms of historical geography, two previous seasons of exploration by the author established the likelihood that Ziyaret Tepe represents one of three important Middle Assyrian (Late Bronze Age) and Neo-Assyrian (Late Iron Age) border cities along the Tigris River between Diyarbakır and Batman, which formed the northern border of the Assyrian empire (Kessler 1980; Zadok 1989). Assyrian textual sources suggest that a series of garrison cities were placed along the Tigris river between Batman and Diyarbakır and a series of small forts were built to guard what was the northern peripheries of the Assyrian state (see Parker 1997b; 1998). Ziyaret Tepe has been identified as one of these Assyrian garrison cities, perhaps the regional capital of Tushan, based on the historical geography of the region (Parker 1997a: 233). Kessler (1980: 110-121) was the first to make the equation of Ziyaret Tepe with Tushan, although alternative locations for the site of Tushan have been proposed. Taylor (1865: 22-23), and more recently Sevin (1989; 1992), for example, have suggested that the nearby site of Üçtepe was the location of ancient Tushan. Our initial surface surveys strengthen the correlation of Ziyaret Tepe with one of the important Assyrian garrisons along the Tigris (Matney 1998). This is seen in the distribution and quantity of Assyrian-style ceramics, the fortified nature of the settlement at the time and its size. Only significant excavation at Ziyaret Tepe will allow for its secure identification and unambiguous placement within the historical geography of the late 2nd and 1st millennia BC.

Previous Archaeological Work at Ziyaret Tepe

Apart from the preliminary surface survey by Algaze noted above (Algaze et al. 1991), there had been no systematic archaeological investigation at Ziyaret Tepe prior to 1997. In the autumn of 1997, the author undertook a topographic planning of the site as well as an intensive surface survey of ceramics (Matney 1998). Encouraged by the general lack of post-Iron Age material on the surface of the settlement, a second season of fieldwork was undertaken in the fall of 1998. The goal of this second season was to begin a subsurface magnetic field gradient survey (magnetometry) in order to map the basic morphological features of the site (Matney and Somers 1999). In 1998, four areas of the site (each between 4,000 and 10,000 square metres in extent) were selected for initial testing. The maps generated from the 1998 magnetic field gradient survey are discussed elsewhere (Matney and Somers 1999) and will be only briefly summarized here (see Figure 3 for the location of trenches). As the 1999 work reported here is limited to the Lower Town, only those areas surveyed during 1998 in the Lower Town

area (Mag-C and Mag-D) are discussed below.

The Mag-C survey area, recorded in 1998, was located on the eastern edge of the Lower Town, an area demarcated by a long, low north-south ridge marking the location of an external city wall. Furthermore, a small hillock at one point along the ridge was interpreted in 1997 as a possible gate structure. Our survey in this area covered 10,000 square metres (Matney and Somers 1999: Figure 6). The northern area of the Mag-C survey area is dominated by a single square structure, approximately 15m on a side. In addition to the square structure, a weakly positive linear feature projects away from the structure in a southeasterly direction for approximately 45m. Most likely, this represents the city wall and a tower or gate. Also of significance is a second faint linear feature which runs parallel to the first linear feature at a distance of approximately 30m to the east. This second feature is either a defensive ditch parallel to the city wall as part of the fortifications, or a road or path leading around the ancient city. Promising results were also obtained in area Mag-D in 1998, located at the southern edge of the site near the southeastern corner where 8,000 square metres were surveyed (Matney and Somers 1999: Figure 7; reproduced in this report as Figure 5). The most prominent feature here runs across the southernmost region surveyed and consists of a distinct linear magnetic feature, almost certainly the city wall. An adjoining large rectangular feature 20m by 15m in size aligns with the city wall and is interpreted as a tower abutting the city wall on its northern face. Like with the Mag-C sounding, it is possible to trace a number of walls or partial structures in the magnetic maps.

Results from the 1999 Season

Given the success of our magnetic field gradient survey mapping in 1998, our team returned to the field in August of 1999 to further explore the Lower Town. As noted above, since the previous field season considerable modern disturbance had taken place at Ziyaret Tepe. In particular, the planting of a new cotton field using pump-driven irrigation in the southeastern corner of the site significantly threatened the ancient settlement. Although at present only a small part of the site is under cultivation, there is, nevertheless, a certain element of urgency to our work at Ziyaret Tepe necessitated by the encroachment of heavily-irrigated cotton fields. As a result of these new developments, we decided to concentrate work in the area of the site immediately threatened by the cotton fields. In 1999 we surveyed an area of 5.12 hectares (Mag-E) which covered a large portion of the southern Lower Town. In order to tie in the Mag-D and Mag-E results, 1400 square metres surveyed in 1998 were resurveyed in 1999, providing a check on our surveying and the veracity of the magnetic data. Major overlapping features are clearly visible in both surveys. For example, a large magnetically positive circular feature — perhaps a kiln — located in 1998 (Figure 5: N90E50) is clearly seen in the corresponding 1999 survey (Figure 4: N840E910). Likewise, the city wall seen in 1998 (Figure 5: N20E30) correlates closely with the 1999 results (Figure 4: N750E930). Despite a loss in resolution in the 1999 dataset, it is clear that the essential morphology is confirmed in both survey samples.

Magnetic data was collected in the field using a FM-36 Magnetic Gradiometer and a

laptop computer running GeoPlot software for processing raw data. The basic collection unit for the surveys was a 20m x 20m grid. The grid area was aligned to the overall site grid established in 1997 and data was collected along north-south traverses set one meter apart west to east. Four data samples per metre were taken in the north-south direction providing a total of 1600 data samples for each 20m x 20m grid. The data were then interpolated to a 2 x 2 data sample per metre density and exported to Surfer, a commercial graphic software program used to generate the maps used in this report. The FM-36 Magnetic Gradiometer was operated on a 0.1 nT sensitivity range. In 1998, we had collected data at a higher sample density (8 samples per metre) than in 1999, although experiments with a 4 sample per metre density done at the end of the 1998 season suggested that we would see a very limited loss of resolution by decreasing our sample density. In order to increase the speed of data collection, thereby covering a larger area, we decided to collect data at 4 samples per metre rather than 8 samples per metre in 1999. In retrospect, it may be possible that this decision was, at least in part, responsible for the notable difference in overall data quality between the two seasons.

The maps generated in 1999 were not as clear as those made in the previous year and the results are more difficult to interpret (compare Figures 4 and 5). Nevertheless, it is still possible to make a few important observations using the data generated by the 1999 survey, especially when considered in tandem with the 1998 magnetic field gradient survey. The most striking subsurface feature from the 1999 survey are a series of parallel heavy linear features which roughly follow the curve of the tell, that is they appear as concentric semicircles with the High Mound at the centre. These linear features are roughly 25 metres apart and appear to represent moderately thick phenomena (several metres across). Several interpretations of these features are possible. Excavation planned for the summer of 2000 will establish the “ground truth” and an unambiguous interpretation.

First, these features may represent the lines of thick fortification walls, in which case there was a series of internal walls which would have protected the innermost portion of the site. This would have been an unusual arrangement given the narrow distance between each linear feature. A second possibility is that these linear features are terrace walls which were part of a highly organized construction of the city in which roughly 25m wide terraces radiated out from the High Mound. The function of these putative terraces is unclear. They could have served as agricultural terraces or, more likely, if part of an intensive urban construction, as terracing for domestic housing. This arrangement, however, is somewhat inconsistent with the prevailing topography which is quite flat across the southern portion of the Lower Town. A third possibility is that these linear features do not represent walls at all, but rather are the remains of field boundaries analogous to those still found in the region today. Modern fields are delineated by long lines of stones — seen as roughly north-south lines on the magnetic field gradient survey maps — which are the normal product of removing large stones and unwanted debris from agricultural fields and placing them to one side. Like these subsurface features, the modern field boundaries are also spaced at regular intervals (closer to 35m apart) although their orientation is perpendicular to the subsurface examples surveyed via magnetometry during the 1999 season. If these linear features are the result of agricultural fieldwork, their dating is of great interest as they may represent late historical or Roman

remains, rather than those of the Late Bronze/Iron Ages when the city was presumably urban in character.

Also visible in the 1999 magnetic survey is the city wall, seen as a northwest-southeast black line in the southwestern part of the survey area (Figure 4: N760 E900-940). This clearly confirms the 1998 results in Area Mag-D. It is clear that, as seen earlier in 1998, the area outside of the city wall has fewer constructions than that inside the city wall. A similar phenomenon can be seen in the southeastern corner of the Mag-E survey area, where the density of strongly bipolar data is considerably reduced and the city wall appears to form a sharp corner. The habitation of the Late Bronze/Iron Age city of Ziyaret Tepe appears, therefore, to have been largely confined to the interior of the city walls. Otherwise, it is possible to trace occasional linear features within the Mag-E 1999 survey area, but not to unambiguously reconstruct the complete plan of rooms or buildings.

Extensive surface survey and subsurface mapping completed in 1997-1999 have provided a fairly good understanding of the general history and morphology of Ziyaret Tepe. With the topographic plans, ceramic distribution maps and subsurface magnetic data in hand, we are now ready to begin excavation at Ziyaret Tepe in the summer of 2000. In particular, the following long-term excavation goals have been set for the project: (1) to record a complete stratigraphic sequence from the High Mound; (2) to conduct broad-scale excavations on the High Mound to explore the nature of Assyrian public architecture; (3) to test the preliminary reconstructions of the city's wall and gate system; (4) to excavate large areas of public housing in the Lower Town in order to better document the daily life of the inhabitants of the city.

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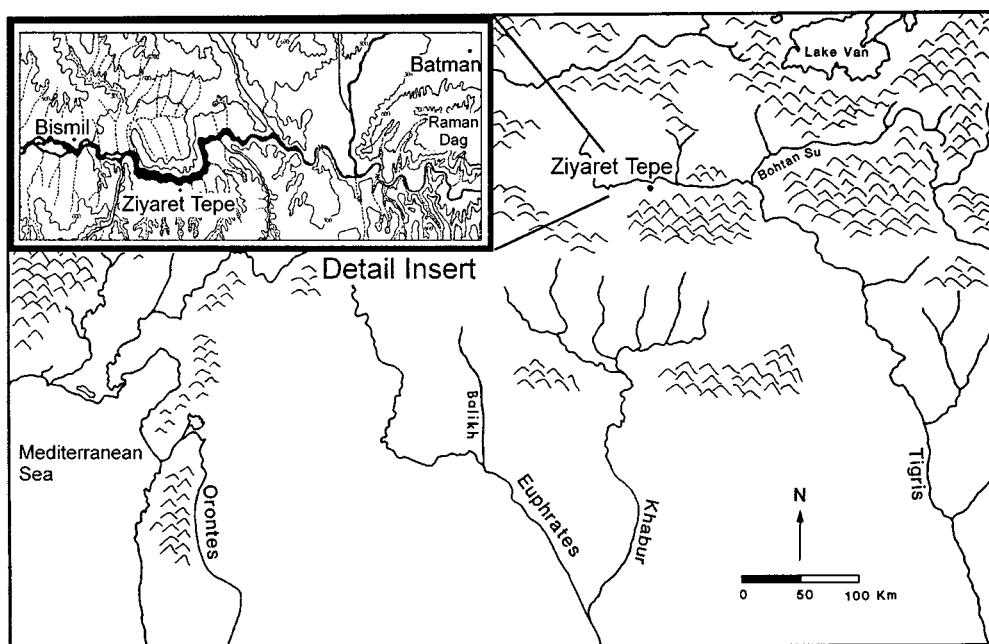


Fig. 1. Map showing the location of Ziyaret Tepe in the Upper Tigris region.



Fig. 2. CORONA image of Upper Tigris region showing location of Ziyaret Tepe in relation to principal modern features.

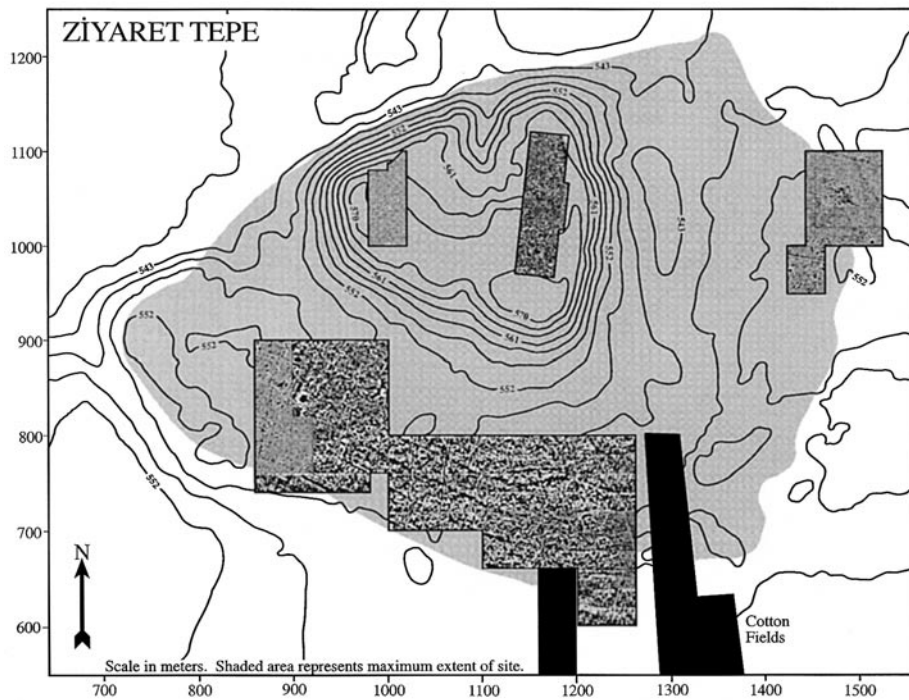


Fig. 3. Topographic plan of Ziyaret Tepe. Limit of the site is shown in olive green. Areas of subsurface magnetic gradient field survey are shown in gray. Contour intervals are 3m. Scale at axes are in meters.

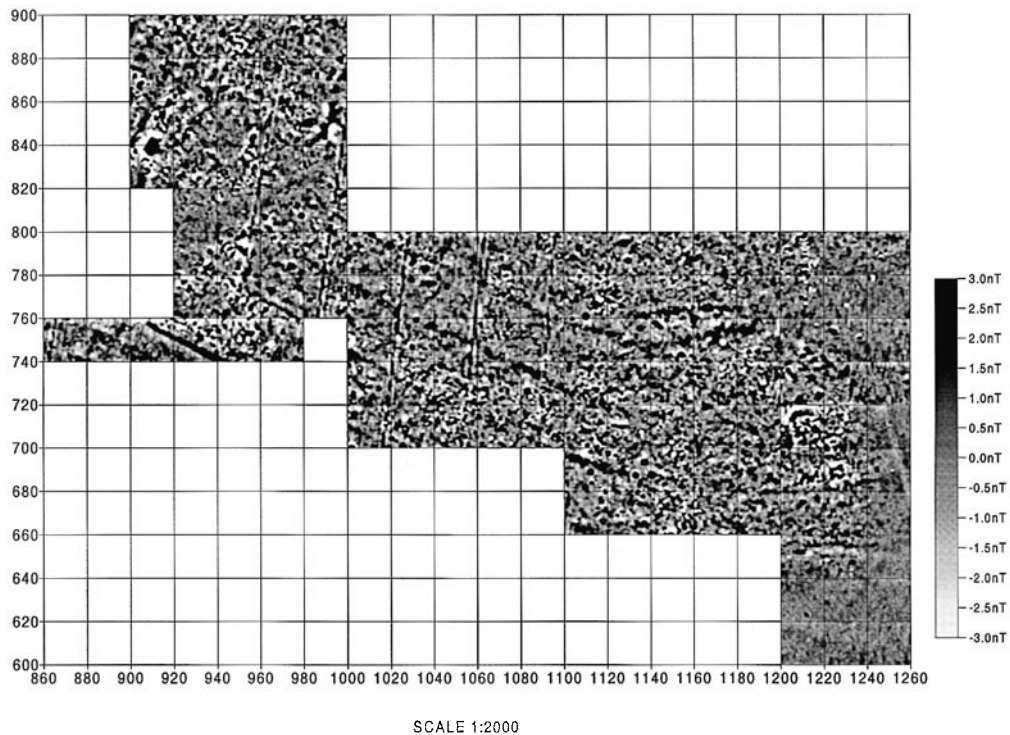


Fig. 4. Area Mag-E magnetic gradient survey map of Ziyaret Tepe. Black represents maximum positive data; white represent maximum negative data. Physical scale on plain is in meters. Image generated from clipped, unfiltered, bipolar data. Thick black lines on the right-hand image represent our interpretation of potential archaeological features.

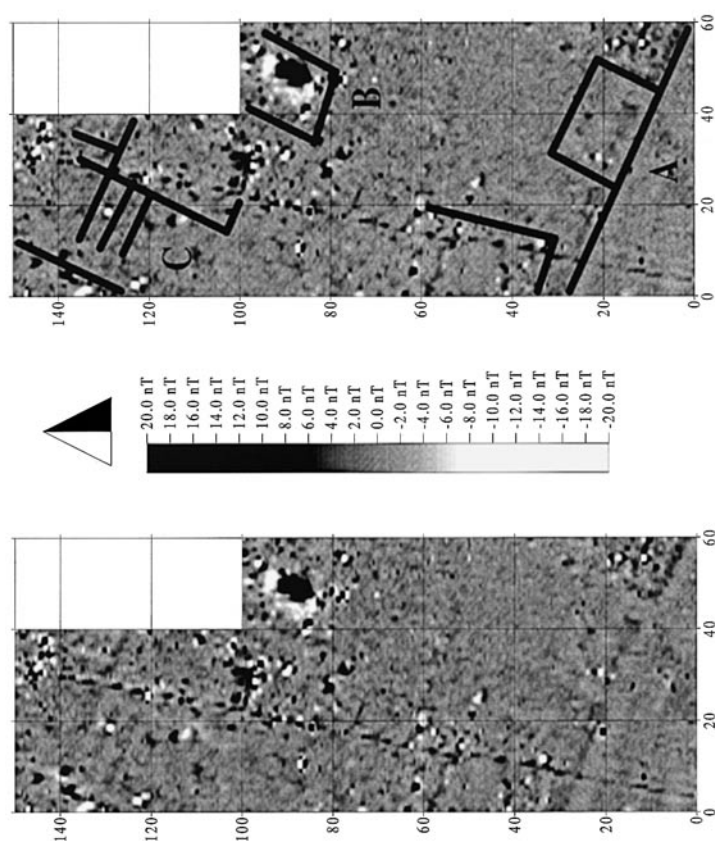


Fig. 5. 1998 Area Mag-D magnetic gradient survey map of Ziyaret Tepe. Black represents maximum positive data; white represents maximum negative data. Physical scale on plan is in meters. Image generated from clipped, unfiltered, bipolar data. Thick black lines on the right-hand image represent our interpretation of potential archaeological features.

THE NEOLITHIC SITE OF MUSULAR - CENTRAL ANATOLIA

*Mihriban Özbaşaran*¹

Introduction

This paper intends to present a general overview of the Neolithic site of Musular which has been under investigation since 1996. Because of the ongoing excavations at the site the results here are preliminary.

Musular lies in Central Anatolia, in the Province of Aksaray, about a kilometer southwest of the Kızılkaya village (38° 20' 51" N, 34° 13' 33.5" E). It is close to the well known Pre-Pottery Neolithic site of Aşıklı about 300/400 m west of it. On its east flows the Melendiz river which originates from the slopes of Melendiz mountain range and Hasandağ – the two volcanoes of the region. The narrow valley of Melendiz with light gallery forests (today and in prehistoric times), flat or slightly hilly zone with mixed forests in the close environment, forests on mountains (Esin 1998c: 221-222) display various ecological niches. Besides this variety and the suitability for agriculture and animal grazing, the volcanic formations have yielded obsidian, and Tuz Gölü (Salt Lake) supplying salt, seem to be the means of attraction for the human occupation from the prehistoric times, which are all confirmed by ongoing surveys and excavations.

Until recently, the prehistoric periods were poorly known from the Aksaray Region. It was the surveys of Ian Todd (Todd 1980; 1998) which supplied the almost only data for the region. Excavated sites like Çatalhöyük, Can Hasan and recently Pınarbaşı Bor in Central Anatolia are situated at the periphery our area. The recent excavations at Aşıklı Höyük and Köşk Höyük, the surveys conducted by the Aşıklı excavation team in the Aksaray region and the surveys conducted by the Japanese team have revealed more new sites which add up to almost 15 Neolithic sites in the region around Aksaray (Harmankaya et.al. 1997) also known as West Cappadocia or east Central Anatolia.

Surveys conducted by the Aşıklı excavation team in 1993 revealed three new Neolithic sites in the close vicinity, i.e. within a one-kilometer diameter with Aşıklı as the centre. These sites, namely Musular, Yelibelen and Kızılkaya (also known as Gedikbaşı-pers. communication with E. Bıçakçı) lie to the west, north and east of Aşıklı Höyük. Observations of the surface material indicated that all of them date to the Pre-Pottery Neolithic period (Balkan-Atlı 1998). Such a result required that these sites be investigated as a whole in their chronological, cultural and social aspects.

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Musular, being one of these sites and being destroyed by agricultural activities, was selected with the aim of understanding the site itself as well as its relations with Aşıklı Höyük and the other aforementioned Pre-Pottery Neolithic sites.

Surface Collection

Work started at Musular in 1996² with a systematic surface collection (Özbaşaran-Endoğlu 1998: 201-204). The aim of this work was to verify or deny the preliminary results obtained from previous surveys at the site, to reconstruct the destroyed uppermost layer, as well as to get general information about the intra-site settlement pattern.

An area of 11.160 sq. m was collected³; the material was sorted into six main categories: obsidian, animal bones, architectural finds, pottery, ground stone and miscellaneous objects such as shells, beads and botanical samples, etc.

The daily evaluation and the distribution of finds led us to conduct the second step and prepared the strategy for excavation: A section more than 15 m long was cleaned where the site is cut in an arc from the villagers irrigation ditch to water the nearby fields. The section revealed two layers of deposit on top of bedrock. While the upper layer was disturbed by ploughing, the second revealed untouched Pre-Pottery deposits resting directly on the volcanic tufa formation, the bedrock.

Excavations and Structures

The first season's work was concentrated in the north section of the site where only Pre-Pottery period deposits were exposed. The results of the systematic surface collection had shown the possible existence of a later pottery settlement to the south (around the highest point of the site, where the datum is 1120 m a.s.l.) (Fig. 1) which was then confirmed by the excavations in 1997-98.

The six 10 x 10 m trenches located in squares N-O 10-12 revealed a pottery Neolithic layer, (see Pottery) resting on the Pre-Pottery layers. Due to the uneven topography of the bedrock, the structural remains of this settlement lay either directly on the bedrock or on top of the Pre-Pottery layers.

² The work at Musular was carried out with the permission of the Turkish General Directorate of Monuments and Museums, under the directorate of the Museum of Aksaray.

³ Following the drawing of the topographical plan the site has been marked in 10.0 x 10.0 meter squares in a north-south and east-west grid. Each square has then been divided in to five 2.0 x 2.0 m collection squares. From the most northern part (line A) to the highest point of the site (line O; see Fig. 1), the whole area was collected without sampling. The site measures ca. 220 x 120 m in total.

Pottery Neolithic

The Pottery Neolithic is represented architecturally by a single, multi-roomed building (Fig. 2, squares N-O 11). It has two small cell-like rooms, a larger room in the south and a long, narrow corridor-like room in the east. South of the large room exists another room which is extremely disturbed (Fig. 4).

The exposed stone walls belong to the foundation of the building which show that the fill of the room and the floors were destroyed. Therefore neither an architectural feature nor small finds were found in the rooms that would indicate the function of the building.

The eastern and western sections of the building were used as open areas for daily use. Pits, garbage areas for pottery and the floor of a silo paved with medium sized pebbles and sherds are within this area. More towards the east (Fig. 2; O 13) a concentration of small pebbles and sherds indicates a 'pavement', although the position of the pebbles and pottery fragments show that they were placed and/or thrown down to form a living surface rather than a pavement. A similar such feature was also exposed just south of the building.

The pottery settlement which covers an area of ca. 800 sq.m has so far revealed a single building. This settlement is thought to be small.

Pottery

The pottery settlement at Musular has yielded 1300 sherds in three excavation seasons. Besides these sherds there are only three complete and/or restored vessels, one of which is a small cup, the other two are bowls. The surface material obtained from the systematic surface collection in 1996 has not been included with this number.

According to the preliminary studies the pottery can be classified tentatively into five ware groups (Özbaşaran 1999: 151). The characteristics of the first group (Ware group 1) can be summarized as having a pinkish-buff surface colour with a slight burnish; it is a coarse ware. The second group (Ware 2) with grayish to dark brown surface colour with grit and straw temper can be called a cooking ware group (Fig. 11). The third group (Ware group 3) is significant with its red slip and fine burnish. The fourth group (Ware group 4) includes sherds with reddish brown or pinkish-light brown surfaces; they are porous and poorly fired. The fifth group (Ware group 5) seems to be a finer version of Ware 1; it is similar in paste and temper to the first two groups but differs due to a glossy burnish; the surface is sometimes mottled.

Musular pottery is hand-made. Few pieces of wheel-made pottery (about 5 in total) and/or unique pieces of very fine clay were gathered; those that were categorized as Other (see table below). The number they represent is not indicative.

The distribution of all the ware groups and their percentage is shown below.

Ware Groups	Percentage
1	32.48
2	10.06
3	39.17
4	13.51
5	3.07
Other	1.61

The largest collection of sherds belongs to the third ware group characterized by red slip and burnish.

The vessel shapes (Fig. 17) include⁴ small cups (A), bowls (B), deep bowls (C), jars (D) and pithoi and/or large jars (E). Small cups usually have S- profile and have an average 7-9 cm rim diameter. Flaring bowls constitute the major group whereas deep bowls are few and all are simple in profile. Jars present two main forms as short necked globular jars and lug handle jars. Large jars and/or pithoi usually have straight sides and have an average rim diameter of 28 cm. An interesting feature, observed in most of the rim pieces, is the flattened rims⁵ which exist on almost all vessel shapes.

The percentage of the distribution of vessel shapes is shown below:

Shapes	Percentage
A	11.36
B	47.72
C	8.33
D	19.69
E	12.87

The ware group characterized by red slip and burnish (Ware 3) is the most preferred ware in bowl (B) and in small cup (A) manufacturing. Many of the deep bowls (C) are also made of this ware. Ware group 2 is common in jar (D) production whereas large jar /pithos (E) manufacturing the most frequently preferred is Ware Group 1.

The pottery assemblage of Musular does not show much diversity in ware groups or in forms. The simple vessel shapes imply that they were functional cups for daily use. Except two sherds with washed-out paint (?) decoration (Fig. 12) all are plain.

A body fragment and the bottom piece of a cup, made of red slipped and burnished ware, display an interesting feature. The side of each sherd was rounded from secondary use

⁴ The majority of the sherds are body pieces, 85.33 %; rims are represented by 11.13 % and bottom fragments by 3.3%.

⁵ cf. Duru 1999: 189.

– most probably as a scraper (Fig. 13).

The lack of diagnostic pieces in the assemblage and the lack of excavated sites in the region with well-established stratigraphy requires caution when dating the pottery of Musular, as well as its settlement phase. The general characteristics of the pottery, such as the manufacturing, firing, the surface treatments, etc., show a modest, even a primitive stage. However the vessel shapes, specifically the large bowls and jars, do indicate a later stage.

When we take into consideration the single architectural remain of a building, the size of this pottery settlement, the quantity and the quality of the vessels and other artifacts such as ground stone and awls, the pottery settlement presents a small, modest, and local example. The purpose of its establishment and its function need to be considered in comparison with the other contemporary sites in the close region.

In terms of relative dating, comparisons with the known sites of Köşk Höyük and Güvercinkayaşı – the closest excavated sites known for the time being – as well as Çatalhöyük and Can Hasan in the Konya Plain show that Musular had differences in pottery tradition (Özbaşaran 1999:151). More towards the west, although the Lake District poses a well-established pottery development (Duru 1999: 167-168), the west implies a distinct pottery tradition expressed in stylistic differences.

Being the most diagnostic among the ware groups, the red slipped and burnished ware of Musular has a long-lived tradition in Central Anatolia starting in prehistory up to the historic period. Such chronological and geographical difficulties presently hinder us from a precise relative dating of the Musular pottery. On the other hand our general impression leads us to suggest that Musular was occupied at the end of Neolithic or the beginning of Chalcolithic, which needs to be tested in future.

Pre-Pottery Neolithic

The excavated area of the Pre-Pottery Neolithic settlement covers an area of 800 sq.m in south. The northern section of the settlement seems to be within the activity area but without substantial architectural remains.

The structures belonging to this period lay mainly in a shallow depression in the bedrock (in squares M-O 12-14), in other words they are surrounded by bedrock. Bedrock seems to have functioned as the foundation for the structures. The long stone wall in the north, the stone building in the east (P) and the kerpiç building (N, with stone foundation) between them rest directly on bedrock (Fig. 2). Due to the slope of the bedrock, the northern wall seems to be the limit of the present destruction; north of the wall the bedrock is only about 10 cm below the surface soil (Fig. 5). What is preserved lays in the southern part of the wall where the bedrock slopes down. The wall is more than 5.0 m long and ends in the east with four huge slabs of stone placed in pairs. The slabs were placed vertically, in a standing position. No indication about their function is yet apparent.

The western end of the wall was disturbed by a burial (Fig. 6). Some of the stones of the wall were removed to make a space for the deceased; after she (see Burials) was buried, they were replaced. A similar case was also observed about 1.5 m towards the east. Another

skeleton of a woman was exposed here, she was buried in the same way which resulted in the partial destruction of the wall.

In the southeast corner of the trench lays the northwest corner of a building (N) with one course of kerpiç on a stone foundation (Fig. 7). Since the majority of the building is under the southern baulk, neither the plan nor any detail about it is yet clear. It is possible that the kerpiç traces exposed in the north of Building P (in Trench N 14) have connections with it. The area will be investigated in the coming campaign.

Building P, as so far excavated, seems to be a one roomed building with a quadrangular plan (Fig. 8). Due to the slope of the bedrock in the south it lays directly on bedrock whereas in the north it lays on an earth fill which was put down intentionally to obtain a level surface. Although no pottery was found in its fill, its stratigraphical position needs be investigated further.

The most interesting and the earliest structures of the Pre-Pottery settlement lay to south and west of the above mentioned buildings and walls. In this area the bedrock has a depression. One of these structures is Building A (Fig. 3). Two others, namely D and L (Fig. 2) lay north of Building A. All of them are quadrangular in plan. Building A has an extension towards the west. All have very finely treated floors, which were painted red⁶ and burnished. They were laid on a bed of small stones and pebbles. None of them has a proper wall except Building A where one can see the traces of kerpiç soil on its south and a single kerpiç block (measuring 0.34 x 0.46 m) on its west. The plastered floors make a curve at the edges and continue up on the walls. An interesting feature exposed in the last excavation season showed that the plaster of the floor at the edge rises upwards about 10 cm and then continues horizontally about 15-20 cm, then finally ends by giving an impression of a step or bench along the floor (Fig. 9). The red plaster continues on these 'benches'. Similar such features as exposed in the south of floor L, might have well been formed in the other buildings.

The floors are in a good state of preservation and contain some architectural features. The floor of Building A (Fig. 3) has two flat stones placed on a line with the opposite sides of the room, probably serving as stands for posts for the roof. Both A and L have post holes with small-medium sized pebbles filled in them.

Recent excavations have exposed the earlier phases of Building D and L. These earlier floors (R and S) lay in the same place, only about 10 cm below the later ones (Fig. 10). They show similarities in size and floor treatment, as well as contain similar post hole features.

Such architectural features can be compared to Aşıklı Höyük, as the contemporary and the closest site to Musular. The mound of Aşıklı, excavated since 1989, presents a well

⁶ The preliminary observations of the floors indicate that they were made from a mixture of lime (possibly obtained from the crust of the bedrock) and clay. It is interesting to note that there were differences in the paint treatment. Some of the floors indicate that red paint was applied to the unpainted plaster of the floor as a finishing touch, while some may have had the same treatment as the floors at Aşıklı. The analyses at Aşıklı showed that "... the floor consisted of a paste made of ground tuff and water, plastered with a red clay containing iron oxyde and then burnished" (Esin-Harmankaya 1999: 124). However these observations need to be checked, samples of plastered floors of Musular are being analyzed by Prof. Dr. B. Schröder/University of Ruhr and Dr. Ü. Yalçın/Bergbau Museum.

preserved and a complete example of Pre-Pottery Neolithic settlement in all architectural, economical and social aspects (Esin 1994; 1995; 1998a; 1998b; 1998c; Esin et.al 1991; Esin-Harmankaya 1999). The northern section of the settlement contains the dwelling area whereas the southwest, separated from the dwelling area by a pebble street, covers building complexes⁷ with specific functions, such as an area for religious ceremonies (Esin-Harmankaya 1999: 124). One of these buildings in Aşıklı, namely Structure T, has a close resemblance to Buildings A, D, and L of Musular (in terms of plan, construction, architectural features, and floor treatments). Though Musular lacks the variety of buildings which at present hinders comment of functional differentiation, one may assume that the buildings of Musular had a non-domestic function similar to those at Aşıklı.

On the other hand, looking towards the west, it is possible to compare Musular architecturally and chronologically with the aceramic layers⁸ of Hacılar (Mellaart 1970: 2-7, Fig. 2-4). Although the dimension of the excavated area at Hacılar is limited, the remains of the aceramic occupation in terms of building layout and plaster floor construction present similarities. However such resemblances have some degree of controversy with the architectural features: ovens, hearths and bins found inside the rooms and outside in the courtyards at Hacılar, implying a domestic character, totally lacking at Musular for the time being.

The two other excavated Neolithic sites of Can Hasan III and Çatalhöyük (known as the type sites for Central Anatolian Neolithic), present a different architectural model from Musular. Due to the arrangement of joint buildings, these sites can be thought of together with Aşıklı, as representative of a distinct settlement pattern: the Central Anatolian model. On the other hand looking to the east, the Pre-Pottery Neolithic sites of Southeast Anatolia can be compared with Musular in terms of settlement pattern. Free standing houses with open spaces in between seem to be the typical pattern for this region. Buildings with specially treated floors⁹ are also included in this pattern. However cult practices display distinct differences (Hauptmann 1999: 75, 79).

Musular's structures, with their debatable functions, may either be ordinary dwellings or specifically functioning buildings when compared to Aşıklı's. The C-14 dates for the Pre-Pottery Neolithic settlement of Musular chronologically support the contemporaneity of the two (see Dating).

If the latter is the case, then the following questions arise: Whom did the special buildings of Musular serve; where are the domestic structures of the settlement located; what was Musular's relationship with Aşıklı like and with other contemporary sites in the region (cf. supra); what was the settlement pattern of the region like? Future excavations and studies at Musular aim to answer these questions.

⁷ Squares 3-4 N-O and 2-4 P-R: in Esin-Harmankaya 1999: 90, Fig. 3; Esin 1998a: 102, Fig. 3.

⁸ cf. Duru 1989 and Mellaart 1998: 58.

⁹ See the Cult Building at Nevalı Çori, (Hauptmann 1999: 74-75), Terrazzo Building at Çayönü, (Bıçakçı 1998: 143), and Lion Pillar and Snake Pillar Buildings at Göbekli Tepe, (Schmidt 1999: 12-13); also for a general overview for Near Eastern cult buildings and practices, see Özdoğan and Özdoğan 1998.

Obsidian Industry

The chipped stone industry of Musular is being studied by N. Balkan Atlı, University of Istanbul. It is mainly of obsidian. Flint is also represented but in very low quantities and in the form of imported blades. The silica sheen on these blades implies that they were used as sickles.

The source for flint is unknown at present. The majority of Musular obsidian is highly transparent brownish gray. The preliminary results on the chemical analyses indicate two different sources for obsidian; namely Nenezi and Göllüdağ – Göllüdağ including the Kayırlı, Kömürcü and Bozköy sources (pers. communication with M. C. Cauvin).

The preliminary analysis of the obsidian indicates a blade industry. The technological approach shows a bipolar direct percussion technique. However, a few pieces may suggest use of a pressure flaking technique. That means the use of two different *chaîne opératoires*. The upper layers contain the co-existence of these two *chaîne opératoires* whereas bipolar technology seems to be the only one used in the lower layers.

The rarity of cortical flakes suggests that the raw material was transported to the site in the form of roughed out blocks. In contrast to the cortical flakes, the abundance of thin flakes implies that the shaping out of preforms was carried out at the site.

Cores at Musular (Fig. 16: 6) are surprisingly few and they are highly exhausted as if there was an insufficiency in raw material. On the other hand, the presence of crested blades, tablets, flakes and lateral blades points out a process of knapping; most of them show the bipolar tradition. The central blades, the majority of which were extracted from two opposite striking platforms, are numerous and they were most probably produced to obtain projectiles.

Projectiles are quite numerous at Musular (Fig. 14, 16: 1-3). Most of them are unifacially pressure retouched while some have inverse retouch limited to the proximal end. Two shouldered Byblos arrowheads also exist, but are fewer in quantity. The tangs are formed by abrupt retouch on each side, some of which have inverse retouch.

Among the other retouched tools, scrapers on flakes constitute the most numerous tool group (Fig. 14); they are frequent on flakes, and end scrapers are more abundant than others. Scrapers on blades and on tablets are few. The category of scrapers is followed in number by various retouched flakes and blades. Splintered pieces (Fig. 16: 7) are also quite frequent whereas borers (Fig. 16: 4-5) and burins (Fig. 16: 8-9) are also present, but very few in number.

Used flakes and blades without retouch are unintentionally produced pieces but used as tools due to their suitable sides. No microliths have yet been found.

The comparison of the lithic material of Musular to Aşıklı marks some variations in the technology of both sites (eg. the numbers of typical bipolar blades and upsilon blades are higher at Musular than Aşıklı where most of the blades are obtained using one of the two striking platforms as the preferred one, Abbes et al., 1999). So the two sites display differences in their *chaîne opératoires*. In comparison to the abundance of projectiles at Musular, there are very few at Aşıklı displaying a different typology (Yıldırım, 1999). Scrapers are common at the two sites but they are mostly end scrapers on non cortical flakes at Musular. Whereas

at Aşıklı the choice of blanks and types are more varied. Splintered pieces are quite common at Musular, and are very few at Aşıklı. Aşıklı yielded quite an important group as microliths and geometrics. They are not present at Musular for the moment.

Such variations may indicate either a chronological, cultural, or a cognitive difference to be clarified with ongoing studies. The studies and the future analyses also aim to answer the following problems:

- The source analyses of obsidian and the interaction between sources and sites
- The different *chaîne opératoires* at the site—whether they are due to the chronological development of technology or due to different group of obsidian knappers
- The extensive presence of arrowheads and their functions (exchange goods, hunting...)
- The importance of variations observed in typology and technology of Musular and Aşıklı

Other Artifacts

Ground stone and bone artifacts have not yet been studied. Preliminary observations show a variety of volcanic material used in ground stone manufacturing. Fragments of stone cups, querns, handstones, pestles, weights (Fig. 19) are present but not many in number. Polishing stones, celts (Fig. 18) in various sizes, shaft-straighteners, a grooved tufa object, a slab of stone with incised patterns and chipped disks are the examples of ground stone artifacts. Bone industry is mainly represented by awls (73 % of the bone artifacts) (Fig. 19); there are few spatulas. Two interesting objects show a high quality of bone working (Özbaşaran 1999: Fig. 10-11).

Burials

The burials so far exposed at Musular belong to eight individuals, one of which is represented only by her/his lower mandibula. The relatively well preserved skeletons indicate that they were buried in hocker position in a west-east direction, with the exception of one which was clearly laid along a northeast-southwest orientation. The rest were partially preserved due to their location close to the surface soil.

Out of eight individuals, four are female, three are male and one is a child. The death age of the females varies between 20-30. There is one young girl who died when she was 13-14 years old. The three males were 18-20; 25-30 and 35-40 when they died. The one whose presence is known by a single mandibula is a child aged 2-3.

There does not seem to exist a burial tradition other than they were laid in hocker position. Two of the skeletons present an interesting situation being buried in a stone wall (cf. supra). Some of the stones of the wall were removed to obtain a space for the dead, after they were buried some were replaced (Fig. 6). The habit of putting stones on the dead is also observed in other burials however in some cases the number is just one or two. None of the skeletons have a clear burial pit, nor any burial gift.

The human bones are being studied by M. Özbek, Hacettepe University. One of the

skeletons which was analyzed in detail (Özbek 1998: 161-173) has given us hints about their physical and nutritional characteristics (Özbek 1998:165). The measurements showed that the male under study was 170.06 m tall; the analyses on his bones indicated that he had a healthy childhood and he died most probably from an illness which did not leave any trace on his bones. The abrasion observed on his teeth is less than the abrasion observed on the teeth of people his own age at Aşıklı (Özbek 1998:163), which may imply nutritional differences or a preferences (pers. communication with M.Özbek) between the people of these two sites. It is probable that the Musular man preferred meat as an alternative to cereals. The ongoing studies will show/confirm whether such preliminary results can be generalized for all the inhabitants of Musular.

Botanical and Zoological Remains

The botanical remains are under study by R. Cappers from the Rijks Universiteit Groningen. Since the analyses are not been completed, the species mentioned below are from preliminary observations. The cereals at Musular include naked barley, *Hordeum vulgare*; bread wheat, *Triticum aestivum* and emmer wheat *Triticum diccicum*. Although they are low in number, their presence is evident (pers. communication with R. Cappers).

Pulses, fruits and wild plants, identified to the level of genus at present, display a greater variety. *Cicer*, *Lens (culinaris?)*, *Vicia*, *Celtis*, *Euphorbia/Heliotropium*, *Valerianella*, *Chenopodium*, *Malva*, *Polygonum*, *Silene*, *Convolvulus arvensis* are all known from Afl›kl› Höyüğü (van Zeist-de Roller 1995:181), not surprising since both sites share the same ecological environment.

Among the other identified plants, the following exist which are all under study.

Amaranthaceae	<i>Amaranthus</i>
Compositae	<i>Anthemis</i>
Boraginaceae	<i>Anchusa</i>
Caryophyllaceae	<i>Stellaria; Silene; Cerastium</i>
Leguminosae	<i>Trifolium</i>
Labiatae	<i>Galeopsis</i>
Labiatae	<i>Lamium</i>
Potamogetonaceae	<i>Potamogeton</i>
Solanaceae	<i>Solanum</i>
Zygophyllaceae	<i>Tribulus terrestris</i>
Chenopodiaceae	<i>Atriplex</i>
Compositae	<i>Onopordum</i>
Gramineae	<i>Bromus</i>

The faunal remains on the other hand are being studied by H. Buitenhuis, Rijks-universiteit Groningen. The so far analyzed small quantity of bones showed that sheep and goat dominate the faunal assemblage, though cattle is also present. The problem of

domestication is debatable and needs further study. Cervid bones belong either to fallow deer or red deer.

Dating

As mentioned above, the earliest structures belonging to the Pre-Pottery Neolithic settlement present a non-domestic character when compared to the building complex at the non-residential area at Aşıklı. Stratigraphically this building complex at Aşıklı was in use during the latest building phases (2C) of the main settlement phase: Layer 2 (pers. communication with U. Esin). The C-14 dates from this area date this section of the settlement to the mid of the 9th mill. BP. The five samples obtained from the non-residential area give the following results (BP): GrN 19366: 8400± 40; GrN 19365: 8420± 30; GrN 20355: 8550± 60; GrN 19862: 8580± 50; GrN 19364: 8585± 45 (Esin 1998a: 103, Fig. 4). The dates confirm the stratigraphic position of the building complex as has already been suggested by Esin.

The four C-14 samples of Pre-Pottery Neolithic settlement of Musular present exciting results when compared to the Aşıklı ones above: GrN 24918: 8300± 90; GrN 24923: 8370± 110; GrN 24924: 8420± 110; GrN 23518: 7980± 220, all BP. The dates verify the existence of Musular Pre-Pottery Neolithic which must be considered together with the non-residential area of Aşıklı. This raises the questions which will be answered in future studies: Did the inhabitants of Aşıklı change their non-residential center at a given period; did a group of people move to Musular for specific purposes, and why did they need this change?

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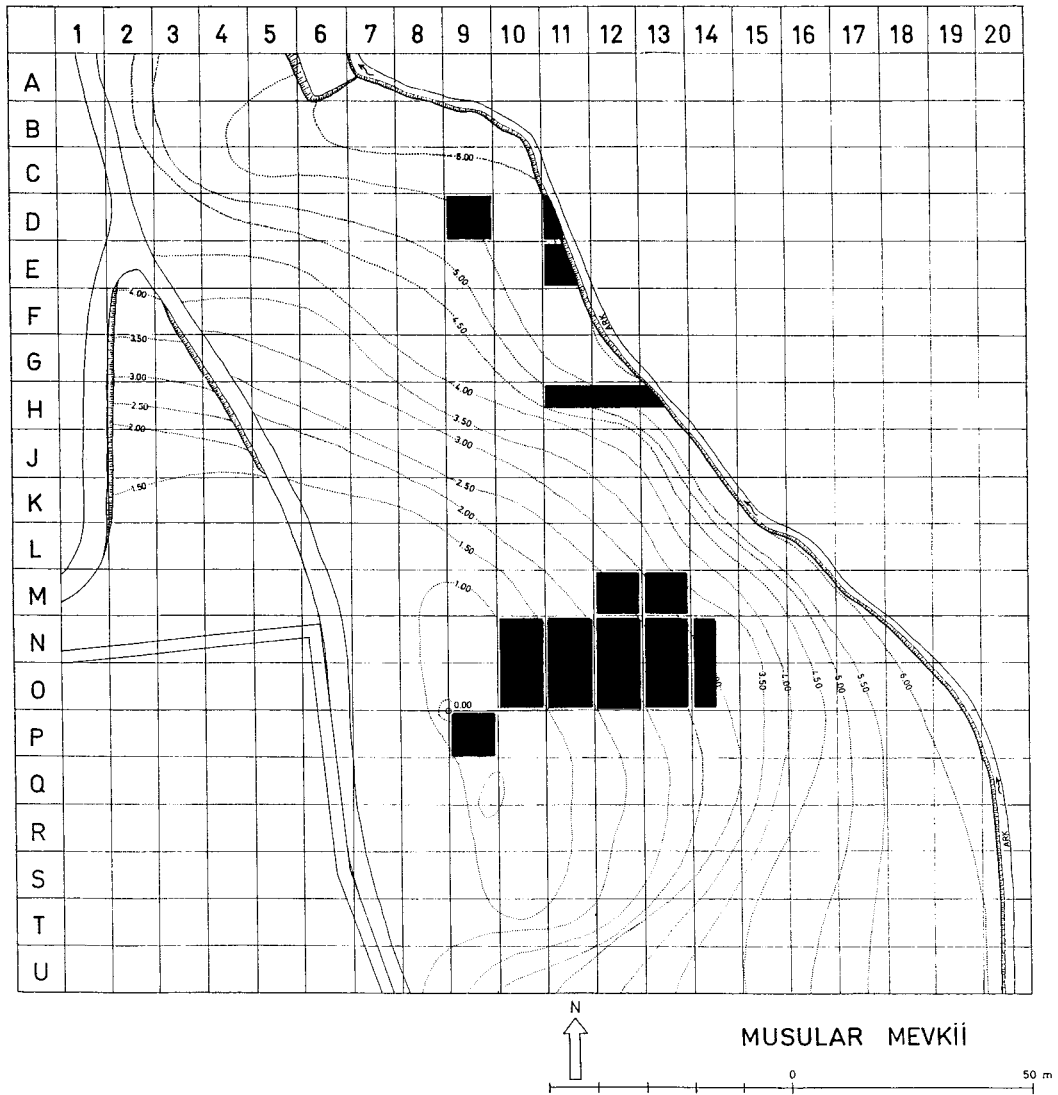


Fig. 1. Topographical plan of Musular (by E. Bıçakçı).

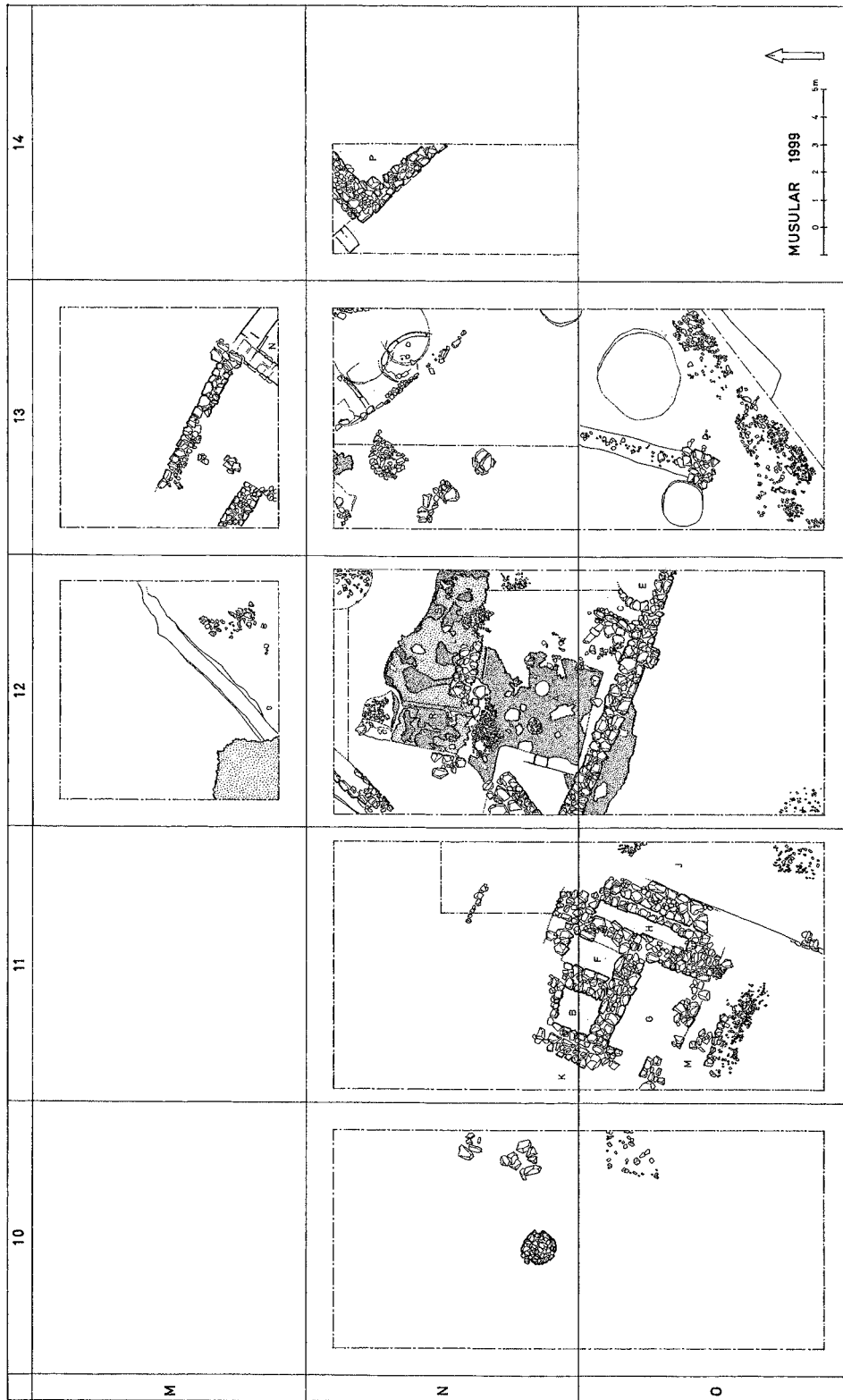


Fig. 2. Architectural structures (by E. Bıçakçı - G. Duru - M. Özbaşaran).

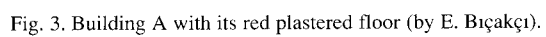


Fig. 3. Building A with its red plastered floor (by E. Bıçakçı).



Fig. 4. The stone building exposed in its foundation level; from southwest towards northeast.



Fig. 5. The stone wall in trench M 13, four upright slabs of stone in its eastern end; at right the bedrock.



Fig. 6. Skeleton of a woman (M.99-SK-4) at the west end of the wall in Fig. 5.

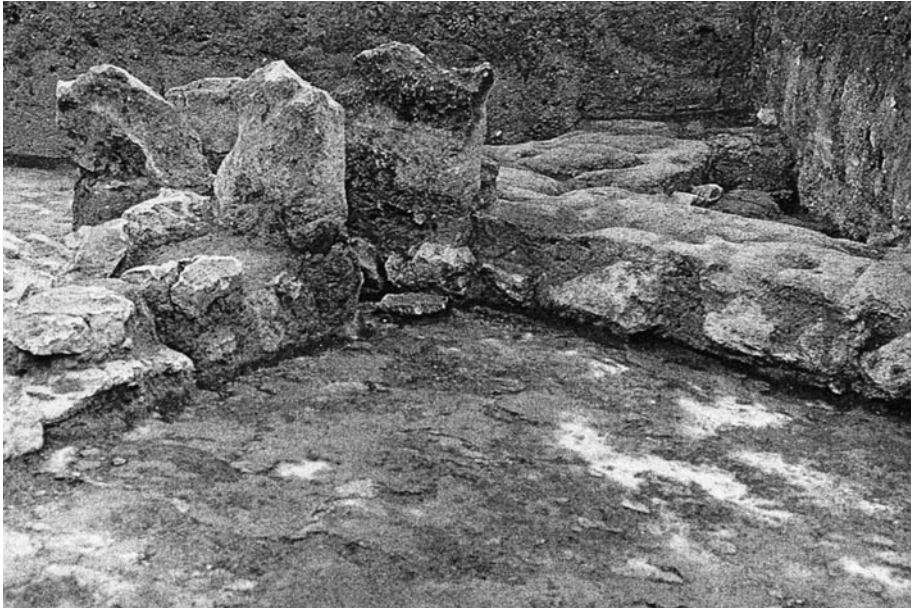


Fig. 7. Building N at right laying directly on the bedrock.



Fig. 8. Building P in trench N 14; southern part of the trench is the bedrock.



Fig. 9. The plastered floor of L, its continuation towards the wall and the plastered bench/kerb, indicated by an arrow.



Fig. 10. Red plastered floors of S and R laying below L and D.



Fig. 11. Lug handle jars/cooking pots (Ware group 2).



Fig. 12. Two sherds with washed-out paint.



Fig. 13. Sherds with rounded sides, used secondarily (Ware group 3).

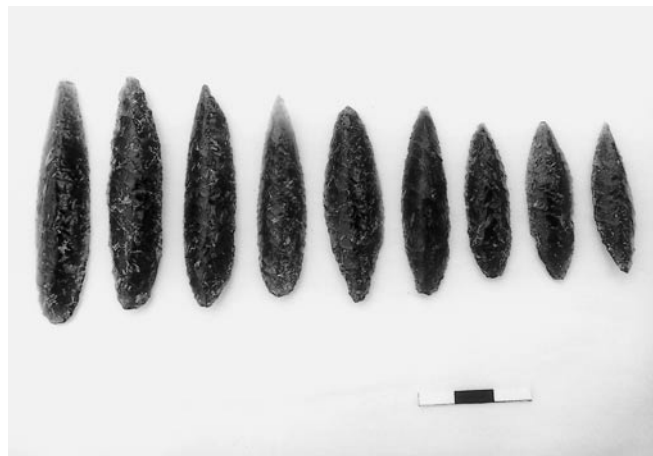


Fig. 14. Pressure flaked projectiles, obsidian.

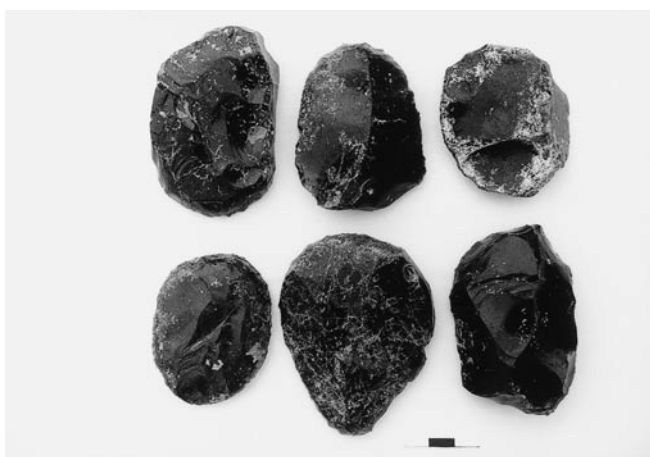


Fig. 15. Obsidian scrapers.

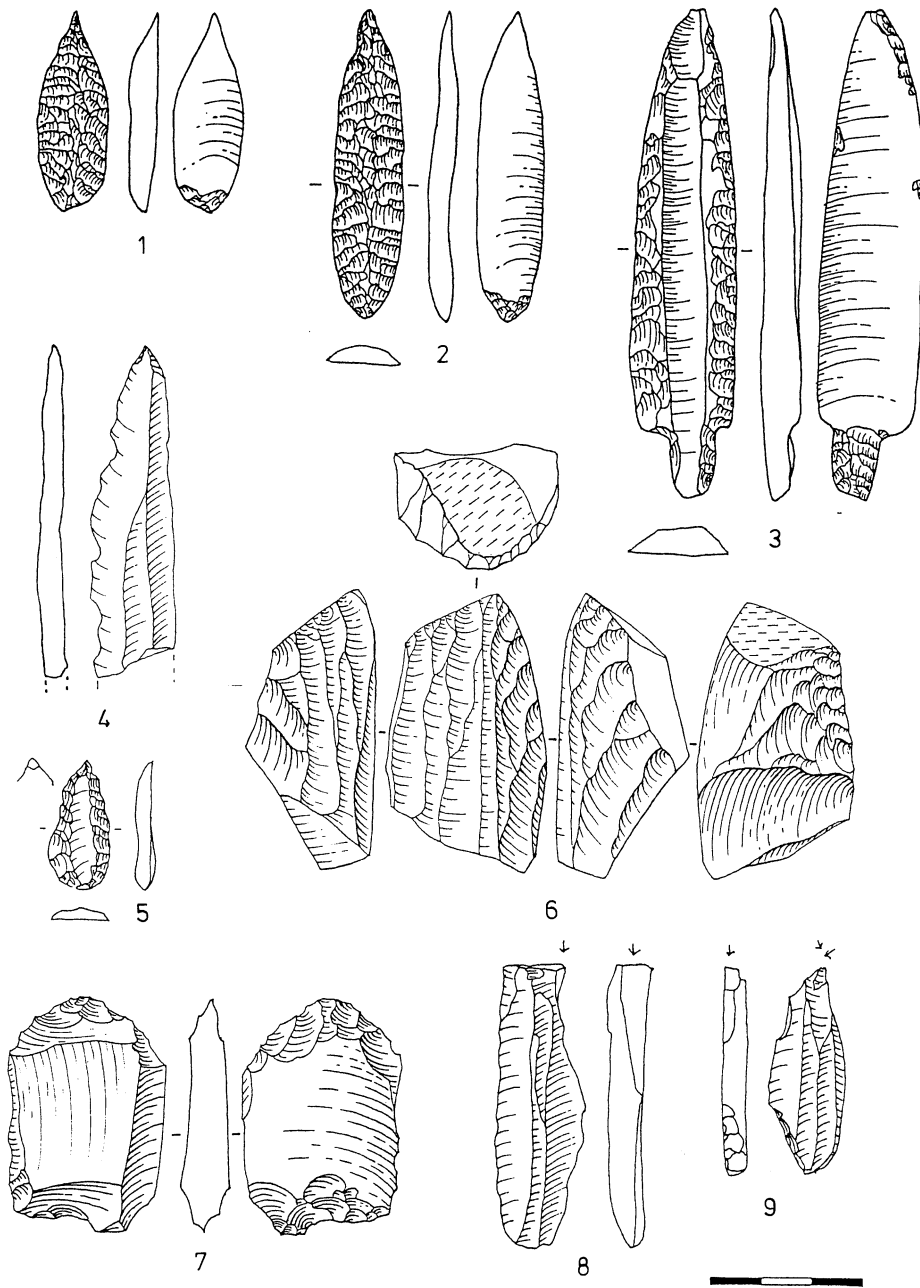


Fig. 16. Obsidian tools. 1-3: projectile points, 4-5: borers, 6: core, 7: splintered piece, 8-9: burins (G. Deprahamian and N. Balkan-Atlı).

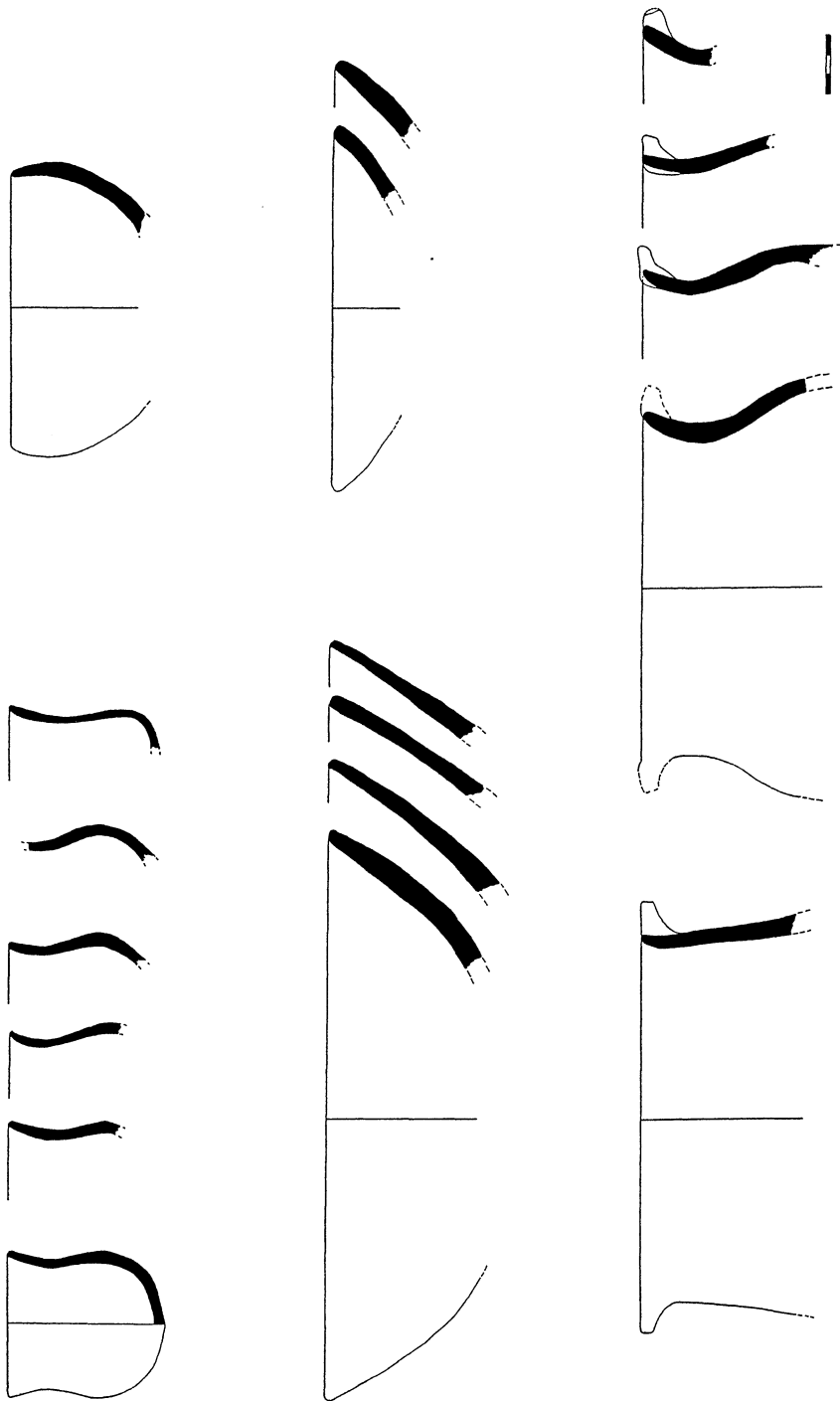


Fig. 17. Vessel shapes. Upper row, small cups and a deep bowl; middle row, flaring bowls; bottom row: lug handle jars.

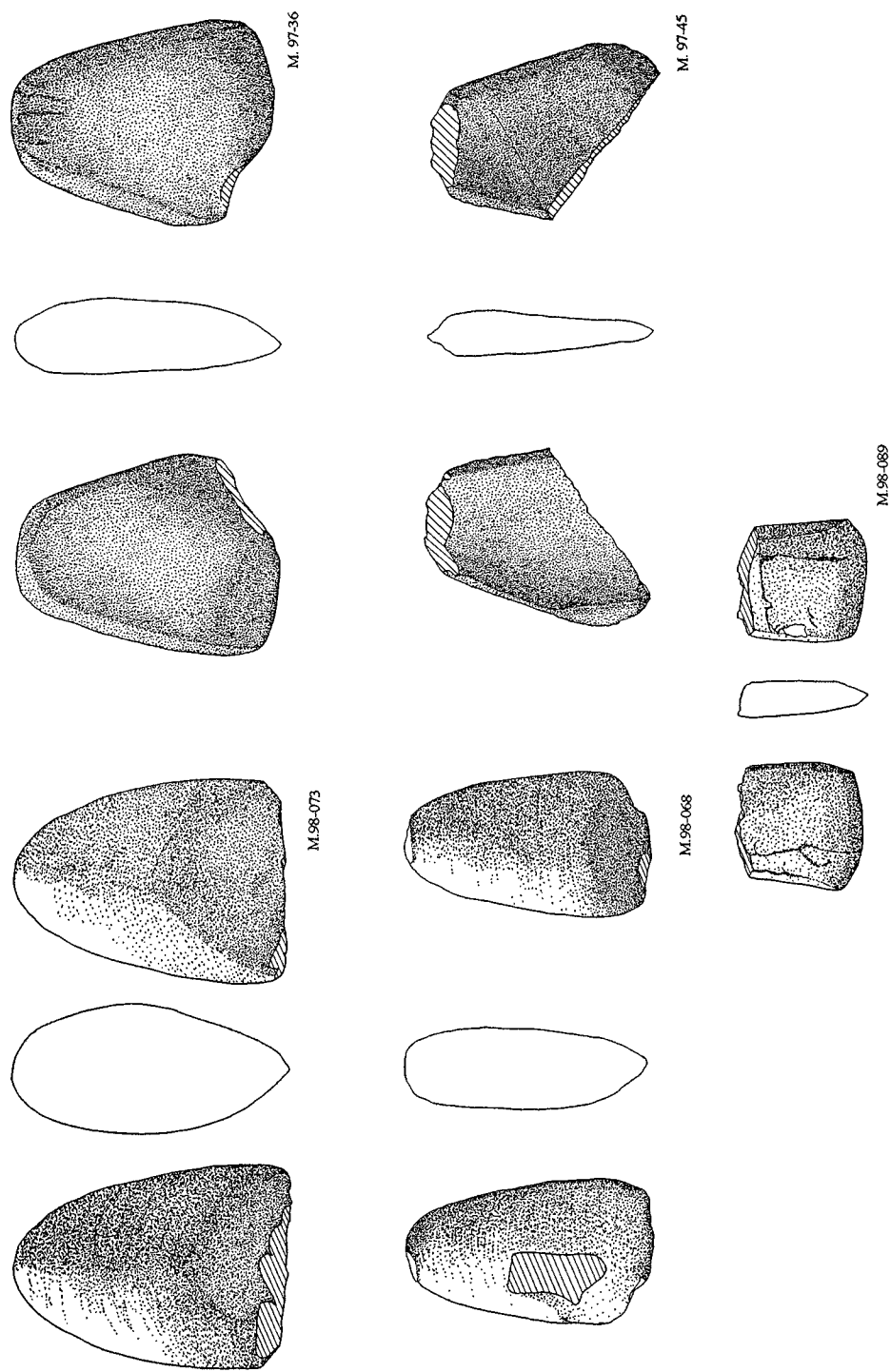


Fig. 18. Celts (by A. Orhon).

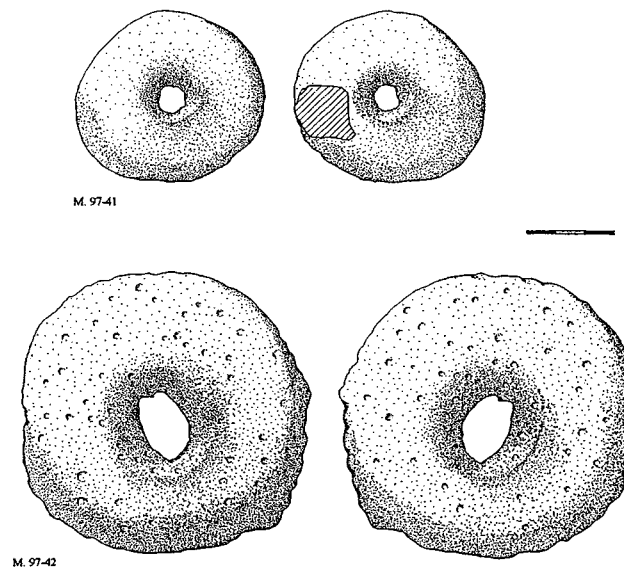
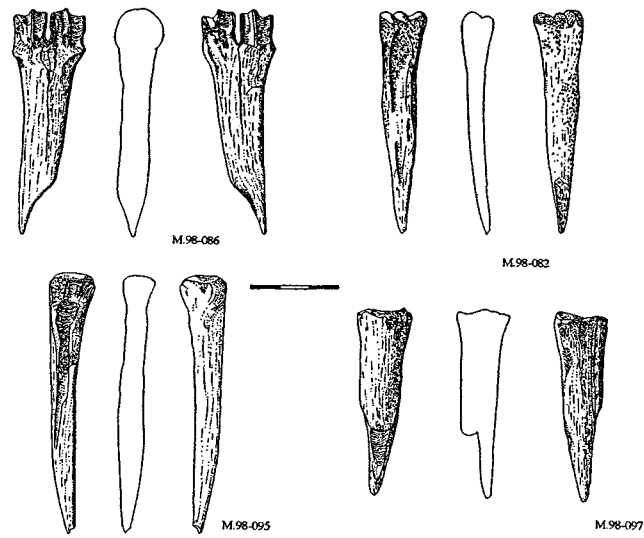


Fig. 19. Awls and weights probably used for fishing (by A. Orhon).

THE 1999 ALIŞAR REGIONAL PROJECT SEASON¹

Ronald L. Gorny, Gregory McMahon, Samuel Paley, and Sharon Steadman

I. THE EXCAVATIONS AT ÇADIR HÖYÜK

Preface

The 1999 season of the Alişar Regional Project (ARP) was designed to more fully explore the important remains found at the site of Çadır Höyük in the Kanak Su Basin of Central Turkey (Fig. 1). The Çadır Höyük Excavations represent one part of the overall ARP and has have been planned in conjunction with the Turkish Department of Monuments and Museums as a long-term project intended to explore cultural development in central Anatolia. The 1999 excavation season was dedicated to two tasks, excavation on the mound of Çadır Höyük and the construction of a new excavation house.² Excavations at Çadır Höyük were made possible by generous grants from the National Geographic Society, FERCO, the Anatolian Archaeological Research Foundation, the State University of New York College at Cortland, and several private donations. Part I of this report will provide details of the archaeological investigations while Part II will detail our efforts to build a suitable excavation house.

The long-range goal of the Alişar Regional Project is designed to document the effect of environment on cultural change in the Kanak Su Basin and is an outgrowth of the Oriental Institute's Anatolian Expedition which investigated the area between 1926 and 1932. Although the Anatolian Expedition documented early settlement in the Kanak Su Basin, the lack of precise sampling techniques precluded the possibility of securing vital information about environment, chronology, economy, and, hence, of cultural change. Subsequent excavations at sites such as Büyük Güllücek and Yarıkaya provided useful data, but did little to enhance

¹ The Çadır Höyük Excavations are part of the larger Alişar Regional Project being conducted under the supervision of Dr. Ronald L. Gorny (Director/University of Chicago).

² Other members of the 1999 Çadır Höyük Excavation team also included Sadık Arslan (staff liaison), Scott Branting (University of Chicago), Miriam Chernoff (Boston University), Rowan Flad (UCLA), James Carlson (Portland State University), Stan Morse (Boston), Oscar Muscarella (Metropolitan Museum of Art, New York), Holly Oyster (SUNY-Buffalo), Aurelia Perry (SUNY-Buffalo), Hamdi Altan (Turkish Government representative / Çankırı Museum), and Alexia Smith (Boston University). The Çadır Höyük Excavation house plans were drawn by Holly Oyster. A team of 16 workers from the villages of Peyniryemez and Yazılıtaş helped the project team in excavation, construction, and artifact processing.

our understanding of cultural change in the region. The fortuitous discovery and excavation of Çadır's prehistoric materials, however, has provided a viable means of updating environmental, chronological, and economic data from the central plateau. The fact that Çadır is a multiperiod site also puts us in a very good position to study the long-term effects of environment on cultural change in the central portion of ancient Anatolia.

1999 Excavations

Four seasons of work now show that Çadır Höyük was occupied from, at least, the Middle Chalcolithic period (5000 BC) through the Late Roman/Byzantine era or ca. 700 AD; (Fig. 2; cf. Gorny *et al* 1995; Gorny *et al* 1999). Investigations during the 1998 and 1999 seasons attest to the presence of a significant Chalcolithic settlement at Çadır with at least four Chalcolithic levels (Gorny *et al* 1995b; Gorny *et al* 1999). These investigations have revealed an enclosed settlement having buildings with associated plaster installations, intramural child burials, and *in situ* pottery (Gorny *et al* 1999).

The 1999 excavations continued our efforts in the horizontal exposure and the deep sounding where excavated remains were known to be contemporary with the problematic Alişar "Chalcolithic" sequence (ca. 3000-4500 BC). In fact, Çadır's Black Polished and Incised-Punctated pottery is nearly identical to the Alişar Late Chalcolithic repertoire. While the Alişar sequence was never adequately dated, C14 results from the 1999 Çadır excavations yielded dates between 3780 and 3370 BC for this important Late Chalcolithic sequence. In addition to providing a consistent pattern of Late Chalcolithic period dates for the Çadır sequence, however, the results from 1999 provide some evidence that the sequence may stretch down into the early third millennium (2645 BC). This would prove to be very significant as it would provide the first radiocarbon dates for this transition from anywhere in central Anatolia, dates that would help to articulate the enigmatic passage from the Late Chalcolithic period into the Early Bronze I. Finally, with the sounding now reaching a depth of more than 4 m, and with bedrock apparently several meters deeper, the discovery of even earlier prehistoric materials appears to be a strong likelihood.

In addition to Çadır's rich Chalcolithic deposit, the 1999 work revealed a wide assortment of Hittite remains lying in association with a large mudbrick structure that runs diagonally through Square 770.890 and which may be the Hittite city wall. While this discovery lends itself to intense speculation regarding the settlement's importance in the second millennium, it also provides a productive means of diachronically evaluating changes in the site's environmental situation. This is exactly the problem we proposed to study in our initial appeals for funding to investigate this important site. Substantial Hittite remains now put us in a position to make comparisons between at least two specific periods (Chalcolithic and second millennium), and with the wealth of Early Bronze Age, Iron Age and Byzantine materials at Çadır (Gorny *et al* 1995), we should be able, given time and resources, to reach some important conclusions regarding the long-term effect of environment on cultural development in central Anatolia.

The Deep Sounding

Our first goal for 1999 in the deep sounding was to remove floor F 13 found in 1998 and, in the process we hoped to gain from materials associated with that floor a better insight into the economic priorities of Çadır's Chalcolithic community. We were rewarded early in the removal process with the discovery of a very nicely fashioned flint blade buried under one of the floor's many plaster lenses. That floor, in fact, turned out to be a series of at least five thick layers of plaster floors, all of which can be seen in the section to lip up against Wall F 14 (Fig. 3). This thick sequence of Level III plastered floors suggests a long-lived settlement, though burned and tumbled bricks in Square 760.900 seems to suggest a final Level III destruction (Fig. 4).

The wall (F 14), which is associated with those floors, stands approximately 1.5 m high and can be seen to have white plaster covering its interior surface. The various sublevels of the floor itself were floated with very good results (see below). Among materials that emerged from the floatation process were a good quantity of seeds, flints, and assorted small finds. Black polished pottery remained prevalent throughout F 13's five major sublevels. Radiocarbon dates for these floors indicate a date of 3720 B. C.

After removing Wall F 14 and the associated plaster floor(s) of F 13, we continued to deepen the sounding in hopes of isolating even earlier levels. Near the end of the season, after digging through several ephemeral surfaces and a layer of dark earth, we reached level IV which was defined by a large stone wall (F 42) exhibiting larger stones lining the "exterior" side and smaller stones on the "interior" (Fig. 5). The wall was found at a depth of 3.78 m and is 1 m in width. Pottery was similar to the Black Polished ware above it, but included the corner portion of a pottery hearth. Radiocarbon sampling from this level point to a date of 3780 BC (see appendix A).

The Horizontal Exposure: Squares 760.890, 770.890, 760.900, and 770.900

Work in square 770.890 proceeded from where our efforts left off in 1998 with excavation in both squares of the horizontal exposure. As the remains found in 1998 were virtually intact, it took little in the way of preparation to get moving again. Our first goal for this area was the removal of fill associated with the Late Classical terrace wall built over the Chalcolithic remains (Gorny *et al* 1999). Beyond that, we also hoped to continue our examination of the enclosure wall observed last season in Square 770.900.³ In 1998 we had discontinued work in the northernmost part of the terrace to concentrate on the architectural remains that were turning up in the southern part of the square. This left a large amount of fill

³ While we are still uncertain as to the disposition of the "enclosure wall," we are beginning to wonder if this wall might be the boundry of a large monumental building such as a palace, administrative building, or temple sitting atop the mound. The wall line of the structure appears to be very straight and has several large walls set perpendicularly against it. If such a scenario were to prove correct, our "enclosure wall" would be simply part of a large building complex constructed on top of what would have been the crest of the ancient mound with an orientation facing southeast towards Çaltepe Dağ across the valley.

to remove and we cleared much of it this past season. In fact, during the process of extracting this fill, workers removed nearly as much soil as they did in all of 1998. Our efforts resulted in a wider display of Chalcolithic levels throughout the horizontal exposure and insights into problems encountered during the previous season.

In 1998, for instance, we were perplexed by the fact that we found little in the way of architectural remains in Square 770.900. In 1999 we may have discovered the reason for that lack of architecture. It now seems that the area we began excavating in 1998 was a courtyard or outside work area. The reason underlying this assumption rests in the discovery of six ovens or “cooking areas” in the eastern half of the square. These “cooking areas” range from well defined “tabun”-like ovens to a rather ephemeral burned areas just east of the sounding. Several of the oven areas contained pieces of the Black Polished Ware that has become so common at the site.⁴ Carbon 14 dates from this level (3485 BC) point to a date at the transition from the Chalcolithic to the Early Bronze Age and may eventually help to resolve the long-standing debate over where the Alişar-Çadır assemblage belongs in relationship to the overall Chalcolithic-Early Bronze assemblage.

In 1998 we also spent a great deal of time trying to make sense out of the disturbed remains uncovered in Square 760.890. In hopes of explaining these remains a little better in 1999, we extended our previous two meter swatch to four meters with interesting results. In 1998, for instance, we observed several walls in the west portion of the Square 760.890 (F 9 and F 11) that preserved mudbrick on top of the foundations. When we excavated this area more fully in 1999, we found that the second wall, F 11, was actually a two course wide wall that had been filled with soil and mudbrick. The wall was plastered on the western side, which we presume to be the exterior of the building. The northern portion of the wall was closed by what appears to be a door threshold. South of the threshold is a group of flat stones forming a stone pavement that may have been a porch leading up to the building’s entrance. The stone pavement was covered by several layers of mud. Also in this area were the remains of a second mudbrick wall that ran parallel to the one in the narrow plaster basin. These both connected with wall F 15 which apparently formed the southern side of a building with a doorway and small stone porch. However, while the 1999 work gave us a better idea of what was happening in this area, the remains continue to be problematic because much of the area has been greatly disturbed due to its proximity to the surface.

A second portion of 760.890 was also opened just to the east of the above structure and excavations here were carried to a depth of approximately 1.5 m. We had hoped to expose more of the enclosure wall found in 770.900, but the wall never appeared, having been cut by a large pit apparently dating to the Hittite period (below). The operation did yield evidence of a Level II wall stub in its upper levels and at the bottom of the pit we found evidence of another Level III wall associated with a large amount of burned mudbrick walling that seems

⁴This is the same area from which we found an andiron with zoomorphic figures in 1998, but which I thought might be later in date (Gorny *et al* 1999, Figs. 13 and 15). Based on these finds, we might have to reconsider the date for the andiron fragments. Since the andiron came from near the current baulk, however, we may still be able to gain a firm date for the pieces when the baulk is removed in 2000.

to have collapsed inward on to a Level III surface (Fig. 4).

In the 1998 report, we offered the opinion that the enclosure wall probably ran under the plaster basin (F 11). To test this we opened a new operation in the eastern portion of Square 760.900 which was aimed at following the 1998 enclosure wall. These investigations, however, were not as definitive as we would have liked because both the wall and the basin were found to be cut first by a Chalcolithic pit, and then by a second pit from the Hittite period. Level II, although cut by these pits, was clearly seen to have been sealed by the same plaster surface that was noted in 1994 and 1998 to seal the Level II wall (F 3) in the sounding. Persistence, however, paid off and careful checking showed that the remnants of the plaster basin in one small area of the operation were actually laid over the enclosure wall making it stratigraphically later than the wall.

Finally, in an attempt to enhance our understanding of Çadır's Chalcolithic culture, we removed nearly all of the Late Classical terrace wall stub and found it to be filled with a mix of pottery from every period between the Chalcolithic and Byzantine periods. Interestingly, at the bottom of the wall, we discovered a single Yarikkaya-type sherd with incised meanders (cf. Hauptmann 1969). Although the context was not secure, the sherd gave us our first indication that settlement on the mound might be dated back to the 5th millennium and that it could be identified by the Yarikkaya plateau-type materials described by both Hauptmann (1969) and Schoop.⁵ A larger example of the same ware turned up later in a second area of the site (Fig. 6), giving more credence to the belief that there is a (still unexcavated) 5th millennium level spread across the site.

Second and First Millennium Remains

An interesting aspect of the 1999 season was the surprisingly large number of Hittite Period finds. Ceramics came to light (along with deer mandibles) in earthen fill behind the Late Classical wall and from a pit in Square 760.890. Hittite finds comprise an assemblage that includes plates, bowls, pitchers, and jars which, along with random surface finds, suggest that Çadır was an important Hittite town, especially during the Old Hittite Kingdom (Gorny *et al* 1995). The identity of the site in Hittite times remains a mystery, but several Hittite cities were known to exist in the area and Çadır is almost certainly one of them.⁶

It may seem strange that little in the way of Early or Middle Bronze Age remains were found between the Chalcolithic and Hittite period levels in Square 770.890, but I suspect that the Hittites did much as the Byzantines did when they built the Late Classical terrace wall. They simply cut away as much of the preceding periods as they needed to in order to build their wall. Hittite evidence is not as clear in Square 770.900 as the wall just touches its northwest corner, though the same accumulation and tumble that characterizes 770.890 is

⁵ Ulf-Dietrich Schoop is currently publishing the Yarikkaya pottery. That pottery now resides in the museum storeroom at Boğazköy.

⁶ The names of the candidates include Hittite cities such as Kapitra, Taruqqa, Taruhsa, Tahirpa, Hupišna, and Šanahuitta.

again seen in 770.900. The wall consists of yellow mudbrick, but since it remains unexcavated, we know little else about its form or how it was constructed. The wall itself was left protected behind the last remaining section of terrace fill in 770.890, and is reserved for next season when we plan to examine it in detail.

Previous seasons revealed the presence of Phrygian and “Dark Age” materials at Çadır (Gorny *et al* 1995: 79; Gorny *et al* 1999: 164-5) and the 1999 season produced more of the same. Of note in this regard is the fact that on top of the mud brick structure of the second millennium, we found a stone installation (F 38/L 41) characterized by a fair amount of Phrygian or Alişar IV pottery. Based on the pottery, the probable date for such an installation must be around the seventh century BC which is in keeping with our previous results.

Ceramics

Black Polished pottery continued to dominate Çadır’s Late Chalcolithic assemblage this past season. Notable among the Level I finds from 1999, however, were several more examples of a bowl with omphalos base first found in 1998. Level II, has an enclosure wall that apparently encircled the settlement (Gorny *et al* 1999) and a room associated with that wall yielded, not only the expected Black Polished Wares, but random examples of Middle Chalcolithic pottery including Barbotine Ware (Fig. 7) and Yarikkaya-style pottery with “meander” designs (Fig. 6; cf. Hauptmann 1969).

Another highlight was the discovery of several Red-Painted Black Polished Ware sherds in Square 760.890. The red paint occurs as a crosshatching or net design painted over the Black Polished exterior and is highly burnished. It resembles the White-Painted Ware found at both Alişar and Çadır, but its the first example of the Red-Painted Ware found at Çadır Höyük. The best parallel for this pottery seems to be a black vessel with red ornamentation that is now on display in the Alaca Museum.

As in 1998, we also uncovered many fragments from the ubiquitous “fruitstands” that are so well known from Alişar (Gorny *et al* 1999: 155-157; cf. von der Osten 1937: 52-78).⁷ The first discoveries came in association with a “tabun” or cooking installation on the northern fringe of Square 770.900 (above), but other examples soon turned up in nearly every area of work. These “fruitstands” vary in color and often have a bowed-out pedestal that closely

⁷ Even though “fruitstands” are abundant in this period, I’m of the opinion that these vessels are not common wares, but used for a specialized purpose. It has been suggested that they were incense burners, but there is no physical or written evidence to support this, and based on the fact that these vessels are contemporary with the emergence of alcoholic beverages, I am more inclined to understand them as vessels connected with the use of alcoholic beverages, and wine in particular (cf. Gorny 1995: 136-137). This would suggest that these vessels were large goblets for special occasions, perhaps vessels from which sacral libations were poured, or into which divine libations were served. The Hittite practice of drinking the Gods (or toasting the gods, cf. McMahon 1991) may be a later extension of this practice. If so, the presence of these vessels in abundance leaves open the possibility that this area once contained a significant public structure (see note 3). A single figurine found in the area, along with part of a fenestrated incense burner, may be further evidence in support of such a theory, though little in the way of other religious paraphernalia has been uncovered.

resemble the Alişar examples. In addition, the site continues to produce large quantity of rim sherds from “fruitstand” style bowls, providing more testimony of the form’s popularity at this time.

Additional pieces of a Black Polished Fine Ware known from Alişar also came to light in 1999 including several finely made black and gray sherds with fluted sides (Fig. 8), all of which came from Level I. In previous seasons we had only found one small example of this Fine Black Polished Ware, but this summer’s work produced new examples that, while not yet as extensive as the collection from Alişar, still give ample testimony to its presence at Çadır. More examples of the so-called Incised-Punctated Ware also came to light in the upper levels of the excavation. Excavation in the sounding revealed a fragment from what seems to be a large fenestrated incense stand from the surfaces of Level III, as well as a part of a ceramic hearth that was found amidst the stones of the Level IV wall. All-in-all, while we have seen some differences between ceramics from Alişar and Çadır, it remains true that the Çadır repertoire faithfully reproduces the Alişar set in almost every aspect, thus giving us a very good picture of the region’s Late Chalcolithic repertoire.

The Çadır assemblage also invites comparisons with the Yarikkaya ceramic sequence, but in-depth comparisons to this latter sequence await, not only our own excavation efforts, but publication of the Yarikkaya assemblage by Ulf-Dietrich Schoop.⁸ While the majority of our pottery forms are similar to the Late Chalcolithic ceramic material found on Yarikkaya’s slope (including the characteristic fruitstands), several pieces are reminiscent of the Middle Chalcolithic pottery from the plateau. The most intriguing Middle Chalcolithic sherds are the intrusive Yarikkaya-style sherds with a meandering motif found this year (Fig. 6, cf. Hauptmann 1969). This parallels a similar motif found on the earliest pottery discovered on the Yarikkaya plateau.

Many of the Yarikkaya Middle Chalcolithic pots display large knobs on their upper shoulders. Çadır examples also have knobs, but they normally differ from the Yarikkaya knobs in that they tend to look more like ledge handles protruding from the top of the rim instead of the large round protruding knobs of Yarikkaya (Fig. 9). This may be a regional variation that is characteristic of the Yozgat - Alişar region, though several exceptions are known at Çadır where knobs are found on the shoulder of vessels and these more closely resemble the Yarikkaya Middle Chalcolithic materials.

The 1999 season produced the first evidence of a Plain Buff Ware in both small fine vessels and large coarser vessels (above). This ware closely resembles its Yarikkaya Middle Chalcolithic counterpart. The Çadır Buff Ware was found in Square 760.890 where it was associated with a Red-washed Chaff-tempered Ware that also appears to be Middle Chalcolithic in origin.

Later period ceramic materials are also illuminating. The Second Millennium pottery found in 1999 includes Hittite bowls, plates, jugs, and the neck of a large Hittite bottle. More Dark Age pottery was also observed in this mix, along with a strong element of Phrygian or Alişar IV ware pottery found associated with the installation (F 38) on top of the “Hittite Wall”

⁸ Personal communication with Ulf-Dietrich Schoop.

in Square 770.890. Materials from the Late Classical period were also of great interest including a nice Byzantine sherd with “wavy-line” decoration that came from the Late Classical wall stub (Fig. 10).

Small Finds and Special Studies

Excavations across the area of investigation continued to produce numerous other finds in addition to pottery. Of note are the fine lithic examples that came to light this season. James Carlson reports that our lithic discoveries ranged from a variety of sickle blade types to points and borers. Altogether, 60 items were recovered during the 1999 season. The makeup of the material is Chert: 31 pieces (52%), Obsidian: 20 pieces (33%), and Flint: 9 pieces (15%). Also recovered in 1999 were two obsidian cores, an unworked piece of obsidian, and a quartz core (other quartz materials were not recovered in 1999 though several quartz flakes were recovered in 1998). Several small tertiary blades were also found while sieving the botanical remains. Carlson suggests that the presence of the cores and primary, secondary, and tertiary flakes on the mound indicates that, to one degree or another, all manufacturing stages were carried out on the site, though this might not have occurred at all times throughout the site’s history as it is often the case that manufacturing takes place in work places located at a distance from the habitation site.

Basalt continues to appear with regularity (Gorny *et al* 1999) and among the ground stone items which appeared this year were several large sling or hammer stones, and a complete basalt grinding slab which was found in the terrace fill. Spindle whirls made from ground stone, as well as those fashioned from ceramic sherds were also uncovered. In addition, several worked bones and a variety of copper nails (or pins) also came to light in 1999, along with a single example of a ceramic figurine, perhaps a bull.

The various layers of floor F 13 in the deep sounding, as well as other loci in the Chalcolithic levels, were wet-sieved by Alexia Smith who found the materials to be rich in botanical evidence. Among the remains found in the sieving were:

- Hordeum sp.* (Barley)
- Triticum monococcum* (einkorn)
- Triticum dicoccum* (emmer)
- Vicia ervilia* (wild bitter vetch)
- Ficus sp.* (fig)
- Lens sp.* (lentil)
- Labiatae* (either mint, thyme or oregano)
- Chenopodium*
- Scirpus sp.* (Sea Club-rush)
- Galium sp.*
- Medicago sp.*
- Phalaris sp.* (canary grass)
- Various other small grasses

The assortment of botanical remains found in 1999 is typical for ancient Near Eastern deposits and is generally consistent with our previous results (Chernoff and Harnischfeger 1996), though the richness of the this past year's work provides further insights into Çadır's agricultural production, especially during the Chalcolithic period. It also begins to give us evidence that can be used for comparisons between the Chalcolithic period and the later classical period from which we had many samples in 1994 (Chernoff and Harnischfeger 1996). It should be noted, however, that this assessment is very preliminary and based on arbitrarily selected loci. A more in-depth analyses of the botanical remains will be published in the near future.

Faunal studies carried out by Lauren Bigelow and Rowan Flad continue to show a traditional Near Eastern pattern of stock-rearing supplemented by meat from wild sources. One of the interesting observations for 1999 was a significant presence of deer in the faunal record, especially among the second millennium remains.

Geomorphological studies are intended to help us place Çadır in its proper environmental context and to help explain its relationship to the region around it. In particular, we hope to determine when and if the region's environment experienced climatic variation and how this affected settlement in the region (cf. Vita-Finzi 1969; Kayan 1996; Kashima, K. and T. Narusa, and T. Sugiura 1997). In addition, we continue asking ourselves how the presence of obsidian (Özdoğan 1996; Cauvin 1996) and basalt figure in the overall picture of life in fourth millennium Anatolia? Since neither are native to the Çadır area, one must consider their place in the role of exchange.

2000 Season Excavation Goals

Goals of the 2000 field season are: 1) to further document Çadır's Chalcolithic settlement, 2) to expose the Hittite city wall and associated remains, and 3) to further document the site's environmental history. To accomplish these goals we will proceed both vertically, with an eye towards understanding the cultural sequence, and horizontally, to provide a fuller picture of prehistoric economic activities and settlement organization at Çadır. While we continue to probe deeper in our main sounding, work in the Chalcolithic levels will secure raw data by means of microscale investigations designed to illuminate Çadır's prehistoric economy. We will emphasize the collection of raw data from excavation, survey, and coring as a means of addressing environmental and subsistence issues. Household studies, spatial analyses, and architectural studies will also play a significant role.

We will also inaugurate a step-trench just above the area where we discovered the Hittite "city wall" in an attempt to contextualize and better understand the second millennium sequence. Since much of the Hittite material appears to have been cut away by the same Late Classical period wall that preserved the Chalcolithic materials, we believe that by excavating north of this terrace wall, we will be able to not only document the Hittite remains, but that we will also retrieve a revealing record of the important transition from the third to second millenniums.

Controlled sampling continues to aid us in reconstructing the basin's natural

environment and how it was manipulated in various periods to accommodate the continually changing dynamics of settlement. This allows our specialists to study Çadır's economic underpinnings, using the distribution of artifactual and non-artifactual remains to identify economic activities within the context of the Level I community and to better understand prehistoric agricultural strategies throughout the Kanak Su Basin.

The regional survey continues to be an integral part of the project as we attempt to integrate local discoveries into a broader regional context. These efforts will be enhanced by the addition of noted geomorphologist Catherine Kuzucuoğlu to the team. Her expertise is crucial to our effort as her on- and off-site corings will produce data vital for understanding the Kanak Su's ancient course, the environment's effect on cultural change, and the formation of Çadır Höyük itself.

II. EXCAVATION HOUSE CONSTRUCTION

Facilities

For the past several years the Çadır Excavations of the Alişar Regional Project has been aware of the need to have our own on-site facilities, including an excavation house, a depot, and a laboratory. In previous seasons we have stayed in two dormitories in Sorgun where, especially at the Öğretmen Evi, we have been very comfortable. While our living situation was nice, it was still 35 kilometers from the site, a good half-hour drive each way. The distance and time involved meant that once we left the site for the day, it was difficult to return in the afternoon. The distance and time, therefore, became somewhat of a detriment to our work. This fact, coupled with Turkish Department of Monuments and Museums regulation, necessitated the creation a new dig house in the village of Peyniryezi. The choices were limited, first by the fact that we had to build or reside in Peyniryezi and, secondly, by the fact that there were no homes available to rent. After considering a variety of options, most of which had already been discarded in previous years, we decided on a plan that called for a mixture of renovation and new construction.

After examining the various facilities in the area of Peyniryezi, we settled on the abandoned village schoolhouse as the site of our new abode. The schoolhouse was no longer used because village students are now being bussed into Sorgun for school. The rise of better transportation and the inability of the government to provide enough teachers for all the village schools led to the demise of the village school system and left many school buildings available for other use.

The school complex itself consists of three buildings, a large schoolhouse with two large rooms and two small offices, a teacher's house, and a toilet/depot building (Figs. 11). The complex sits on a parcel of land that measures approximately 60 m x 100 m (?). A stone wall from which the local villagers have since quarried stones for their own dwellings originally encircled the school complex. Electricity still runs to the school, but will have to be enhanced to accommodate computers and other electrical equipment. Water was brought into the

complex at the end of 1999 in preparation for the coming season.

The three basic buildings on school property are solidly built and in good enough shape that they should serve us for many years. In order to service these buildings, we have made a number of contacts and secured the services of a local contractor who is overseeing the construction of our complex. He seems to have caught the vision pretty quickly and we expect him to be a great asset in the completion of this complex.

The main schoolhouse is spacious with two very large rooms and two smaller offices at our disposal. The schoolhouse itself will serve as workspace for the staff, and especially for the specialists. The teacher's house is situated 10 meters south of the main schoolhouse. The house itself is small, but in good shape. It contains two small bedrooms a shower, toilet and kitchen. The kitchen, which we originally thought could serve our staff, is far too small, so we are constructing a new kitchen to accommodate our needs. The 10 m space between the school and the teacher's house will be filled with a large patio where meals can be served and where work can also be carried out. The back half of the patio will be covered by a simple *hasır*, giving it both security from rains, as well as an airiness that will make it a pleasant place to eat, as well as to lounge, relax, and read during those rare moments of leisure afforded an archaeologist in the field.

The patio will be approached via a semi-circular set of steps that will also serve as a seating place for outdoor gatherings. Directly opposite the entrance will be an exit with stairs leading up to a gazebo to be constructed on the hill behind the patio. We hope to plant pine trees around the patio to give it a sense of privacy. We also hope to plant many additional trees on the school property in coming years, thereby guaranteeing a pleasant cool abode for years to come. A third structure in the complex is an old toilet-storage building that has already been converted into a depot.

Additional improvements are currently being made to the schoolhouse in order that it will be usable as an excavation house for 2000 season. These include not only basics such as cleaning and painting, but also renovation of existing buildings, rewiring the electrical circuits, additions to those structures, and the erection of additional new buildings including the dorm, combination shower-bathroom building, and a new storage depot. The new dorm and bathroom-shower facility are already being built with the help of private donations designated specifically for construction needs (Fig. 12). Long-term plans call for the construction of other features such as an enclosed kitchen area, a permanent lab for conservation and restoration, the gazebo, and the planting of trees and gardens around the main house.

Conclusions

Excavations at Çadır Höyük are crucial for unraveling Central Anatolia's regional chronology, as well as for explaining environmental and economic changes through time and relating these to wider changes in power and population in central Anatolia. The integration of historical data with information about soils, vegetation, pollen cores, dendrochronology, bones, seeds, and site distribution now provides an independent data base which is already being used for comparative analyses by scholars around the world. As such, the Alişar

Regional Project can be expected to tell us much about the rise of social complexity on the Anatolian plateau and in other parts of the ancient Near East. The acquisition of a full excavation permit from the Turkish government and the construction of a permanent excavation house near the site will greatly facilitate these endeavors.

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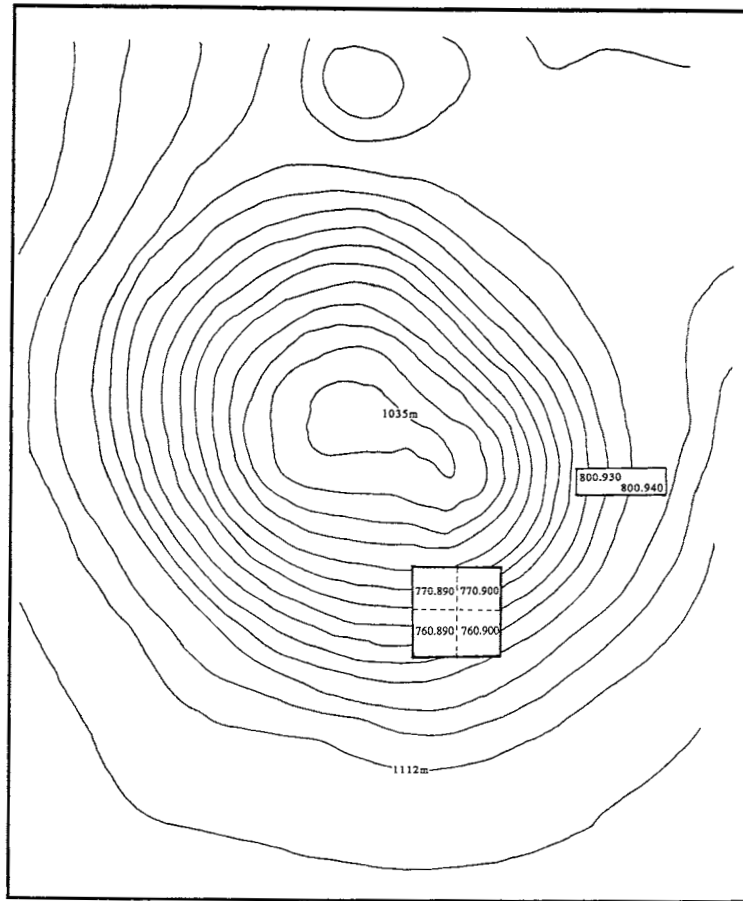


Fig. 2. Çadır Höyük.

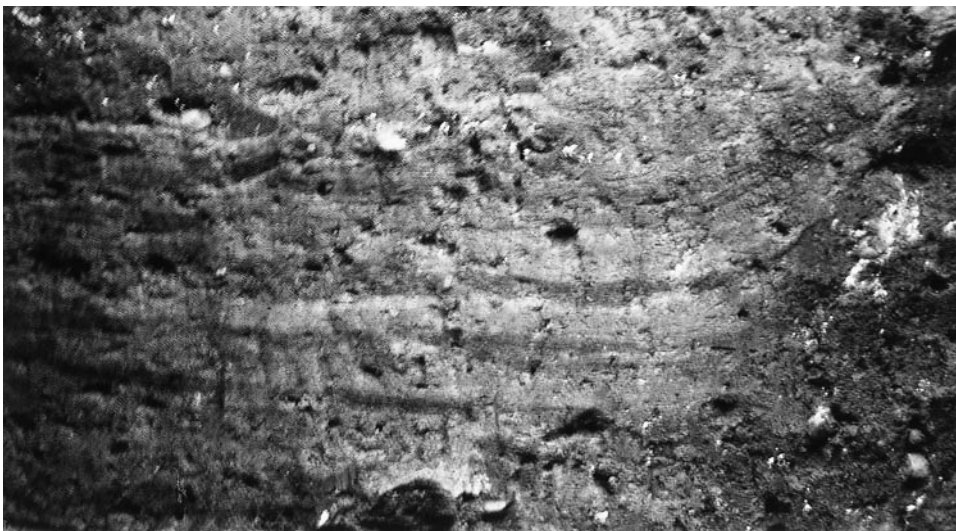


Fig. 3. Sequence of plaster floors in Square 770.900.



Fig. 4. Level III tumble.



Fig. 5. Level IV wall in deep sounding.

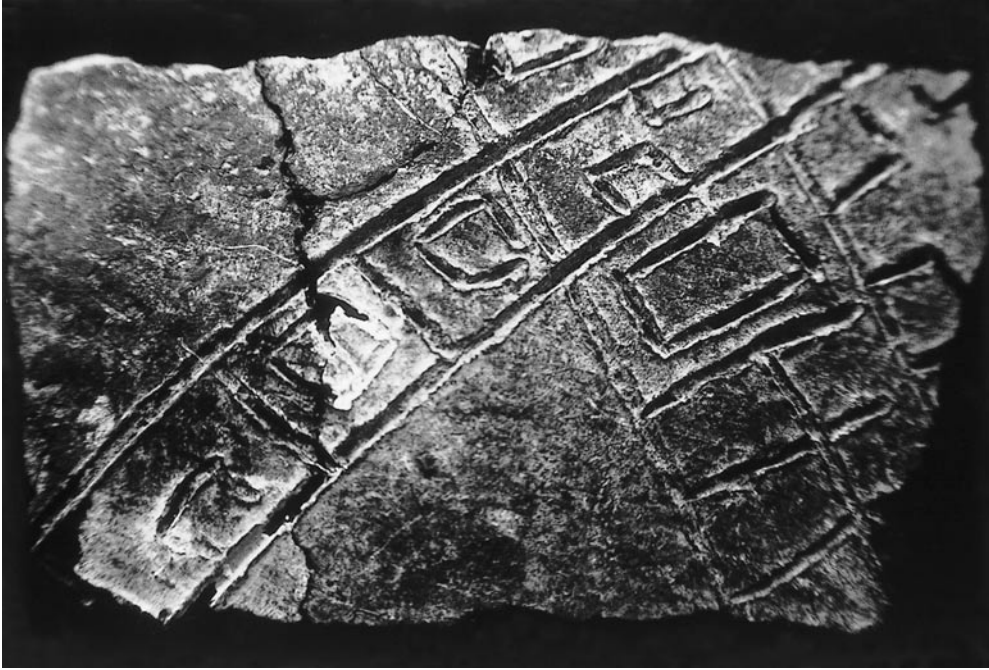


Fig. 6. Yankkaya-style sherd from Square 770.890.



Fig. 7. Barbotine ware from Square 770.890.

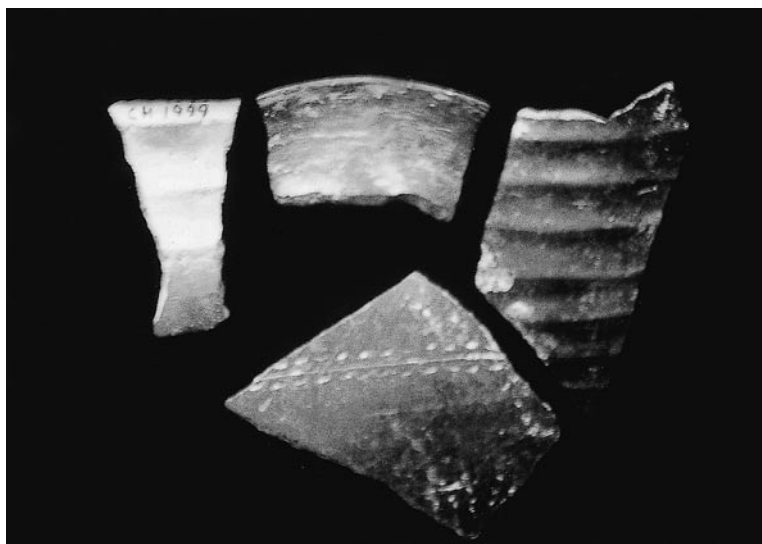


Fig. 8. Fine ware sherds from Çadır Höyük.



Fig. 9. Knobbed sherd from Çadır Höyük.



Fig. 10. Late Classical Period 'wavy line' ware.



Fig. 11. School complex in Peyniryemez (on edge of village).



Fig. 12. New Çadır Höyük living quarters under construction in Peyniryemez.

RE-CONSTRUCTING THE ANATOLIAN VILLAGE: REVISITING ALIŞAR

*Alison B. Snyder**

Introduction

Villages in central Anatolia 'exhibit' the effects modernization and westernization are having on the relationship between lifestyle and building traditions. This is a preliminary report on a project that is documenting and tracing the settlement patterns and house forms of three small pre-established villages and one newer town situated in the Yozgat region of Anatolia, about 255 km east of Ankara on the way to Sivas. The author first became acquainted with the region when working as part of the first team that excavated at Alişar Höyük in 1993. This project was initiated in summer, 1998 during which a comprehensive survey of the area's villages was completed. In the summer of 1999, the first full season of fieldwork commenced and concentrated on a smaller number of villages. These settlements, including the newer town, have not yet completely 'modernized' and therefore serve as a diachronic laboratory where one may observe and chart the subtle and distinct directions of change. This article will point out some of the broad prototypical aspects of the changing Turkish landscape. It will also focus on part of the pre-established village of Alişar since this village has a unique history of documentation and it will use the new town of Esenli as a contemporary comparison of settlement. Several possible perspectives for future study will also be presented. Of primary concern are what aspects of tradition are being retained, what are being let go and how this movement impacts the future for the village and other development. This is an on-going study.

While 'architectural' on the surface, this project is fundamentally based in the disciplines of anthropology and archaeology. It looks at the integration of the built world's reliance on social and cultural customs and acknowledges that one cannot exist without the other. It also illustrates the differences found between layers of history associated with rebuilding and renovation using local construction techniques, and it identifies a different direction of new building that reflects the changing needs of the inhabitants. Here architecture and the analysis of architecture becomes a unique lens through which to holistically critique and expose the aspects of the rapidly changing historical context of indigenous culture and the reorganization of traditions and values. Through its methods and anticipated findings, scholars

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and practitioners in archaeology, anthropology, geography, planning, landscape architecture and architecture can begin to measure, visualize and analyze how the incremental changes in domestic architecture and settlement planning reveal the interworkings of modern cultural, social and economic forces.

Project Background

Modernizing has been part of the Turkish Republic plan since 1923, yet more recently the economy, the environment, religion, political factors and the advent of mass media pose extra challenges for rural populations. The chosen grouping of small Anatolian settlements from an area rarely surveyed was selected to begin to form a base-line study-group suitable for prototypical comparison. The base of study stems from Sorgun (previously called Kohne or Büyük Kohne), a city that has grown from 30,000 in 1993 to 50,000 in 1999. It is within the Yozgat province and is 35 km east of the larger city of Yozgat. The area of study radiates out to the west, south and east of Sorgun. Archaeologically, this region is dominated by two current excavations – The Alişar Regional Project: Cadır Höyük Excavations with R. Gorny, director and Kerkenes Dağ with G. Summers, F. Summers, directors. Though archaeological excavations surround the settlements the region is not presently reshaped by tourism, as many others inland and along the coast, have been. However, a small amount of the local economy has begun to rely on the influx of outside people working on excavations. The local cognizance of this activity in the summer months includes the hiring of workers and the purchasing of foodstuffs.

In the 1998 survey, many aspects of village life were observed. All of the pre-existing settlements, which vary from 25-200 homes, are no further than 40 km from each other yet a small range of hills and unexcavated ancient sites divides them. This situates the villages in slightly different valleys so regional differences (some build with more stone as opposed to mostly mud brick) become apparent. From a physical standpoint, the villages were observed by looking at the varying qualities of the geography, the evidence of existing architectural traditions and the infiltration of new building, and the way in which the village layout gave distinction between public and private spaces including the location of the mosque and other gathering places such as the cistern-fed fountains and private “village rooms.” Other questions had to do with observing whether the formation and shaping of interior and exterior spaces in pre-existing villages came about because of the daily roles women and men have in and outside of the home. In 1999, three pre-existing villages were designated for study based upon the distinctions found in the survey. The two closest to Sorgun are called Küçük Kohne and Sahmuratlı in the NW of the study area and have a relationship with Kerkenes Dağ. Selected from a slightly different region ca. 25 km away is Alişar to the SE that has had a direct relationship with Alişar Höyük. The fourth and newest settlement added to the study ca. 8 km further south of Alişar is Esenli. This was deemed a new town in 1993 with its own Belediye, or municipal government, and presently has ca. 400 homes. It was planned to re-house villagers after the opening of the Gelingüllü Dam spread water that submerged the original village of Dedik whose name was changed to Esenli in 1969 (Doğan 1995).

Project Documentation

Data gathering is being compiled in several ways. In 1999, the formation of a team of three Turkish architecture students aided the author in field research. Our efforts yielded documentation consisting of three fully measured and mapped village plan layouts that located the interior and exterior social gathering spaces along with the housing complexes. Documentation included comparing the existing villages against 1970's and 1980's parcel maps to create new maps that showed the roof plan and layout of every building. Detailed measured drawings of fifteen house complexes including four village rooms were made. The results have broken the domestic dwellings into a series of groups or types related to age, numbers of families living in the complex, and materials used. Age is one of the hardest questions to answer. According to interviews, the oldest homes or complexes appear to be 100 years at most, but all have been modified or rebuilt in some way given the nature of the materials used. Data is beginning to yield categories of buildings according to roughly 15-year groupings. Village mosques are much easier to date as the styles and décor are more pronounced. House complex typologies have been preliminarily identified as "closed linear agglutinate", "open and closed linear hayat", "closed or open central sofa or salon", or "closed mixed 2-level." All are also grouped according to whether all the buildings are attached forming an enclosed land parcel, or whether the complex is formed of separate buildings and/or leaving an open parcel. Color slides, and black and white photographs accentuate the drawn visual images.

We interviewed many of the inhabitants to see what specific and general patterns emerged that might give reasons for the changes found over time for the village layout or a family's home complex. Questions ranged from family member age, occupation, family history and/or recent migration, work abroad, design and use of the domestic complex, the need for renovation versus the choice of new construction, and thoughts on their future lifestyle and whether they will stay in the village. The notion of a village aesthetic is still a mystery as it appears that functionality is the real catalyst for any present innovation though there is an older presence of carved wood work for exterior rafters, some window frames, and some interior columns and special storage walls in village rooms. There is also a pleasing method of making older roof skylights and an ongoing system of whitewashing the exterior and interior of the domestic complex, leaving much of the support rooms of the complex a natural mud color. The most decoration in the village still exists in various forms inside that village's mosque.

Synthesis of this data continues. A large database of visual and textual research are being compiled and field drawings are being converted into digital form via a computer-aided-design (CAD) application system. And, as the focus of part of this article is on Alişar Village, the new drawings are being compared to the earlier work carried out by archaeologist Hans Henning von der Osten and published by geographer John A. Morrison (see below).

The Results of Industrialization and Modernization on the Central Anatolian Village

Besides tourism or archaeological excavations there are other types of local and outside economies that act as catalysts for changing the regional architecture. For instance, Turkish companies have altered the surrounding environment while investing in new water management infrastructure such as the building of the recent dam. This resulted in the formation of the new town of Esenli that comprises part of the study group. Farming practices have been largely mechanized with the use of the tractor and there have been extra government incentives for forming cooperatives. This mechanization has led to a broad migration since less people are needed to farm, and/or more money has allowed a family or some of its members more mobility. Full electrification has been in existence since 1980 and in the 1990's mass media via television increased the awareness of life outside of the village in every family. In addition, many individuals have sought work in Turkish industrial centers and in foreign countries such as Germany since the sixties. Germany continues to have a very high Turkish population. A second wave of work migration to Europe, even as far as Australia, occurred in the 1970's with family members eventually returning to Turkey or continuing to send their earnings back to their village. Along with an increase in wealth, individuals have brought and continue to bring their recently found sophistication and knowledge of the industrialized "world beyond the village" back home. This project is interested in how those aspects of the living environment – either physical or social – have begun to shift.

Today, although all homes have electricity, bringing fresh water to each home or the management of waste via plumbing is still not ubiquitous. Many have a privy separate from the home. In the last 20-25 years the advent of industrialization and technology has produced options of using different building materials in the village. Mass-produced materials such as terra cotta roof tiles and concrete blocks and, the most recent use of reinforced concrete frames forming columns and beams with in-filled walls of hollow terra cotta brick covered in thin plaster, have changed the lifestyle of the inhabitant. Most architecture has previously been made of either a base of granite with mud brick above or all mud brick construction covered with a thick mixture of mud and hay. The roofs have been traditionally flat rather than pitched and are constructed of wood beams and a thick thatch topped with more of the mud/hay mixture. This required substantial upkeep, especially because of the rains, yet worked well with the very hot or very cold climate. It was also a self-sufficient system. With the newer structural materials, the architectural layout of homes including the rooms and spaces associated with the domestic complex have been altered. The traditional enclosed domestic unit has begun to be a more semi-attached or in some cases a completely open settlement pattern. The village that was once composed of a series of walled streets and walking lanes, and is now more varied. A few families live on the edges of villages with fully detached homes have begun to adapt to a different mode of life with regard to intruders.

The population has also greatly shifted. For instance, a publication put out by the Kaymakam office (the local municipal official) says that there were once 90 homes in Alişar Village (Doğan 1995). In 1932, Alişar had 58 homes (according to Morrison), yet in 1995 there were 46, and in our research in 1999, there were closer to 40 homes inhabited. This

decrease in population and the number of empty homes has to do with a long history of migration beginning in the 1950's and still going on today--a result of shifting economics. This past summer's interviews found that there were several types of trends. There were whole families that are holding onto their land as traditional inheritance but had moved to other Turkish cities or abroad. There are families who only come to live in the village in the summer months to reap the benefits of their land during the harvest. There are some families who still live in the village but their children have either fled for a more fortuitous working lifestyle, been sent away to school or have been married off. There is also the trend associated with less people needed for farming. All of these factors have lead to a palpable atmosphere of transition. One has to look beyond a lot of ruin and abandonment to see that a changing but rich life continues.

Pre-existing Literature and Alişar Village

There is and has been limited documentation on the physical and economic landscape in this area of Anatolia, as a result of the archaeological activity. In 1931, Erich F. Schmidt published a survey of some of the neighboring villages of Alişar Hoyuk conducted from 1927-29. During 1930-31 more ethnographic survey was conducted by archaeologist Hans Henning von der Osten, with Richard A. Martin and John A. Morrison and published in 1933. Morrison, the excavation's geographer, conducted the most extensive work only on Alişar Village as dissertation research for the Department of Geography at the University of Chicago in 1932. His 1938 dissertation, *Alişar: A Unit of Land in the Kanak Su Basin of Central Anatolia* (Chicago 1939) contains a rare and detailed account of this Anatolian village. No other work of this level of concentration especially with the accompanying visuals has been published during this time period or even later on Anatolian habitation. In addition to a large amount of information on crop distribution, the author concentrated on some of the indigenous building practices. Morrison included drawings of the village plan, detailed farming parcels and crop layout, and the architecture of one home and its relation to the family who built it (see fig. 1, 5a). He writes extensively on the types of rooms and the construction practices. He also gives explanations of lifestyle with respect to belief systems, and the local economy as related to livestock husbandry and farming practices.

Revisiting Alişar Village allows for the study of the current situation to be compared to previous documentation. It is rare that archaeologists have the chance to study an on-going evolution of a particular settlement and more specifically the past use, current re-use and new construction of a group of buildings sitting on a specific parcel of land. Illustrations show the complexities associated with land that is divided as it is passed down through a family. This report also outlines the past and current needs of the village's inhabitants and their relationship to the 'modern era.' One can assume that we are glimpsing a view similar to the layers of building activity on an ancient site especially since much of the construction continues the traditions established in the region and indeed the Near East over a long time period.

This project begins to show the changes with regard to the Mehmet Effendi family Morrison first documented and it begins to expose the differences of living styles now found

between the descendants of the original family. A parcel map dating to 1974 served as a basis for the research work begun in 1999. Though documentation is incomplete, several floor plans aided by photographs are used to show the differences between the family units. The planning of the new town of Esenli is used as an example of the trend towards modern development in the Yozgat region and beyond. (see figs./photos)

Introducing Other Literature for Further ‘Re-constructions’

Modern anthropological work on the Turkish village exists, as does work on ancient housing in the broader region. There is also a strong body of work on social theory and architecture, and on social theory and archaeology, as well as on documenting vernacular settlements, the role of modernization on modern Turkish society and on the role of women, and on the evolving form of the Turkish or Anatolian house type. All serve as inspiration and will support and expand the finds of this project. Here, some of the concepts and sources that relate to re-constructing the many meanings behind the Turkish village are highlighted with a more extensive selected bibliography included to allow the reader to see the variety of relevant material on the subject.

The seminal work of P. Stirling in the 1940's and 60's (Wiley and Sons 1965; Eothen 1993) on villages near Kayseri and the later work of C. Delaney in the 1980's (Berkeley 1991) on a village north of Ankara, have been invaluable for giving a full picture of social relations in a particular village and discussing the complex dynamic. Stirling also puts the role of the anthropologist in perspective while researching his subject. He writes extensively on the household and the rules associated with a patriarchal society. Delaney goes to great lengths to elaborate on the relationship between women and the men and how one can interpret the boundaries of the physical village and the psychology of boundaries. Ethnographer H. Glassie, has also published work on several settlements in Anatolia (Indiana University 1993) and describes lifestyle and some of the morphology associated with the Turkish house and the development of the multi-purpose room, the 'sofa.' While most anthropologists give an in-depth account of the ethnographical aspects of human interaction and some information on the geographical context of settlements there is less time spent on the formation of the physical village, locations of specific public or private places or a sense of the layout of the rich domestic life as evidenced by many configurations of the house complex. There is also limited discussion on the arrangement and situating of buildings and spaces with regard to the street and other public or private places such as courtyards, squares or even the proximity to and the location of the mosque to the rest of the village. The aim of this study is to integrate the changing visual legacy of life patterns with social usage and to use drawn documentation to not only describe but to foster further creative analyses.

To add to the method for analysis of the types of domestic spaces and ultimately the comparisons of the village plans, a series of approaches support different vantage points with which to learn more from this study-group. Specific type and typology work on the formal aspects of the Turkish or Anatolian House comes from the work of architect S. H. Eldem (Istanbul 1984) and Ö. Küçükerman (Turkish Association 1991). Much of it is centered on

the use of the “sofa” or central room used for greeting, sitting and circulating through and its effect on the layout of the rest of the home. Their work does focus mostly on more developed regions of Turkey but it does apply to village vernacular. From a more pure architectural perspective, architects such as K. Herdeg (Rizzoli 1990) and S. Abdulac (Harvard U. 1982) have written and analyzed structures in the Middle Eastern region. Research also involves looking at the work of those who study social interaction and architectural planning practices as well as type and typology. A. Rapoport (Prentice-Hall 1969, Sage 1982) and J. P. Bourdier (IASTE 1989) have written about building in the folk tradition and defining vernacular architecture through the process of constructing. Rapoport, like others, also discusses further the meanings associated with the house and the possibility of sacredness. There are crossovers with the interdisciplinary work of Susan Kent (Cambridge 1990) and Ian Hodder (Unninn Hyman 1989, Routledge 1995) on ancient and modern socio-spatial patterns. Hodder brings to light post-structuralist and postprocessual archaeology and calls for a “timeless objectivity.” Though this is written with the express interest in material culture of the past, the meanings applied as a result of “interpretation” are relevant to this project.

Edited volumes such as S. Bozdoğan and R. Kasaba (Seattle 1997) and J. Abu-Lughod’s (Princeton 1998) on the effects of modernity in Turkey and in the Middle East have also been influential on this project. It is important to recognize the current phenomena of change. Another journal article by T. Erman (Cambridge 1998) also outlines the current state of development with regard to the still spreading vernacular of the ‘gecekondü’ along the outskirts and within the large metropolitan areas of Turkish cities.

The field of ethnoarchaeology is influencing this study and it is hoped that this project’s data will be helpful for those studying the relationships between settlement planning and construction practices along with the roles the inhabitants have in place-making. The works of C. Kramer (HBJ 1982) in and L. Horne (Smithsonian 1994) in Iran as well as a new dissertation by F. Ertuğ-Yaraş (Dissertation 1997) on an Anatolian settlement are part of a much larger category of study that unite archaeology and anthropology and architecture.

Revisiting Alişar Village, Beginning a Re-construction

This study is interested in literal and theoretical issues regarding behavior and how spaces are designed or formed. Theories on the forces that have created the changing patterns of social interaction and land-use and will further answer whether architecture follows human requirements or whether available materials and the spaces developed have shaped the users. In this way, new insight will be gained on the catalysts producing change and the traditions and rituals that appear to be holding tight. What was once localized has given way to a less specific or more global outcome. In a way, this focus on life in the village or pre-urban landscape gives a view of past, present and future trends.

This is a preliminary view of the changes present at Alişar Village. Further analysis is required to piece together what has happened since 1932.

The figures 1a through 6b consist of photographs from 1999 and data collected in the form of drawings from 1932, 1974 and 1999/2000. They give a glimpse of the complex

morphology that exists in the example being made within only a small part of Alişar Village. Morrison's study provides a unique baseline with which to compare the existing village situation. Morrison writes that Mehmet Effendi's house complex was not necessarily the norm yet its prominence formed a good place to begin to understand the indigenous life at that time. According to interviews and Morrison's account, this prominent family originally migrated from Kars during the Russian-Ottoman wars ca. 1870 and first settled in the village of Peynir Yemez. Approximately 15 years later he was resettled in Alişar. Dursun Effendi, an ağa, or big landowner, was the father of Mehmet Efendi whom Morrison's work highlighted. Dursun Ağa is said to have been the catalyst for building the village mosque whose interior stands today with a renovated exterior. Today, the family name of Dursun is carried on as the extended family's surname. The descendants, today, are the grand, great and great, great grand children of Mehmet Effendi all of which are well aware of Morrison visiting their family long before they were born.

Alişar village, like most of the regions villages reflects a settlement pattern set along a north-south axis following the flow of a creek and the local topography. Most homes, though varied in form and size of parcel are oriented to capture the east and west sun, though there is variation. The main Dursun parcel is just south of the original cemetery and sits at the north entrance to the village that is about 1.5 km in from the main roadway. Much of the streets and walking lanes that form boundaries for the parcels appear to have existed during the time Morrison made his research (see figs. 1, 2, 3 for comparison).

The area of the village focused on in this report are the original Dursun family parcel and some of the other parcels surrounding. This family has expanded its land holdings and two of the extended families not covered in this article have built modern homes in the last ten years. One of these families (they are brothers to D. Dursun) lives in the village while the other lives almost completely in Germany.

The figures visually begin to describe the change over time through a series of maps, detailed house drawings and photographs. No archaeological excavating has taken place during this project. Only above ground measuring, observation and interviewing has occurred. This report shows that there is some direct corollary between the ongoing built arrangements and the original house complex. The recording and comparing of exact locations of the rooms documented by Morrison in 1932 with the present state of building documented in 1999 is still incomplete and will addressed in future seasons.

Three house types are included for comparison of lifestyle. Two are Dursun family homes. The R. Dursun house complex (grandson) is on the original Mehmet Effendi home-stand. This massive complex includes a home comprised of many time periods ranging from the presumed original village room of Dursun Ağa's time to a esparate modern house built five years ago that appears to be located in what was the courtyard of the Mehmet Effendi house. In an interview, it was said that part of the original women's quarters were taken down in the last three years to build a storage barn and depot to be shared by the families. Curiously, the old home has not been totally abandoned. It is still used for many types of storage for food and for animals. In addition, the cooking room is still used (as they are throughout the village), and a large open room called the 'hayat' functions as an outdoor living room in the summer

months. This room has also had a series of historical usages and will be researched further.

Closer to the creek to the east is another Dursun family homestead, now headed by D. Dursun and his father, a brother of R. Dursun both grandsons of Mehmet Effendi. This home for six is very different from the other. First it stands alone but has had, in its past, a home for the father now in ruin to the south. The home is now two levels and was designed as one story first ca. 25 years ago. It is built and maintained in the traditional manner using thick sun dried mud brick, thick mud and hay plaster and thatched roof. The home feels modern and spacious even though it has no running plumbing. In the enclosed courtyard that also serves as the entrance, there is an electrified water pump. They say they will continue to live this way and have no intention of moving (see fig. 6a).

All of the family house plans in this part of Alişar Village can be seen on the map in fig. 3. Figure 6bis of a house complex that is really three homes. This sits close to the Dursun parcels and is included in this discussion as a form of lifestyle comparison. It has rooms that were built ca. 100 years ago such as the cooking room, kitchen storage and barn which run along the south of the complex from east to west. A single mother lives in a single-room home and her married son and daughter-in-law live in a two-room home both off of the main eastern courtyard. There is also a new 15 year-old home with its own courtyard entrance from the north. The other son built the new house but is presently working elsewhere. Except for the new three-room house this family also lives in the more traditional way. Their home has maintains a high wall on both sides of the parcel and therefore uses the courtyards as transition and work spaces before entering the homes.

Even in this small area of Alişar Village it is possible to see a variety of lifestyles and house forms. Compare the dwellings in room arrangement and scale. Many are discrete spaces that have but one entrance. Whether open or closed forms, there are layers of semi-privacy and full privacy.

Alişar Village exhibits a situation that prevails in all of the villages surveyed in this project. The types of spaces created and used by the women, men (and children) of the village appear to be a mixture of functional spaces revolving around an Islamic plan with the mosque usually serving as the symbolic and real center. With mosque rebuilding, the locations of the newer mosques are sometimes located outside of the original village center. There appears to be a continuum of the architectural style and building methods over at least the last hundred years which probably could be traced to much earlier time periods as dwellings in Turkey and other Mid-Eastern regions which, have built with these basic materials over millennia.

And as seen, though many of the same materials are being used, there are very different floor plans hidden behind the walls of the village. Playing with the notion of typical spatial layouts, it is more difficult to pin down a real set of repeated prototypes though there are a series of factors that allow for categorizing the older, new hybrids and completely new structures.

The last pair of photographs (fig. 7a, 7b) relate to a newer way of living for many of the inhabitants now dwelling in the town of Esenli. Here the sense of what it means to live in an Anatolian 'village' and notions of public and private have almost completely changed.

Observations and Some Conclusions: Putting Alişar and Pre-villages in Perspective with Esenli:

Modernization has many faces. While the sophistication of the people is evident in their knowledge, many villages and homes do not have running water. They continue to depend upon the spring water that flows from the cistern collectors that catch the sweet underground water and dispense it in various locations throughout each village. There is continued regard for some of the older traditions of building and for planning a home within the existing village settlement plan, but there appears to be less cohesion. The older ways appear to be breaking down so rapidly that soon the people who have memories of the land-use patterns and the attached social relationships will either migrate as others have already or eventually die off.

The dam project that produced a new town is quite striking for its differences as compared to neighboring villages. It adds to the comparative data about social organization and the physical and spatial impact on the landscape. Although thought to be planned with good intentions, the new town is fraught with physical and psychological problems. There is a mixture of discontent from the dislocation and from planning efforts for new houses, however some of the younger inhabitants like the more open and 'modern' way of life (fig. 7b).

In many of the pre-existing villages, especially in Alişar Village, one sees far more ruin than rebuilding or new construction. This situation is due to the family tradition of a never letting go of one's land unless there is economic reason to do so. Land is the family's legacy and it is the inheritance for the children. So if a family moves away and visits rarely, if at all, the walls break down, the roof falls in, and the garden goes fallow, yet the door may still remain padlocked. The structure may become an eyesore yet all of the village people accept this fate. A family memory, however bleakly, lives on. Other building situations show the complexity of choices surrounding an inhabited domestic complex and its possible reorganization. In many families, a decision to build a new home next to an old home is an option; or, a home is renovated while still attached to much older spaces. And, sometimes a complex is either partially or fully demolished to make way for a new modern home.

The concept of 'new' brings along with it a higher economic 'status' and this has begun to permeate the village. It appears that there is some competition to achieve the ability to build fresh and it sometimes appears that achieving this modern status is more important than the pride associated with owning an older structure or the village community as a whole.

The effects of modernization and westernization are most blatantly seen in the now "hybridized" landscape of old with newer or completely new buildings. Indigenous materials, such as stone and sun-baked brick with plaster, mud and hay are set next to or separated from the newer simplified building technology of reinforced concrete frame with hollow brick infill and plaster with terra cotta roofs. The rapidity of this new building or renovation exacerbates the already difficult task of dating buildings. In this study the investigation of associated social customs begs the question of which tradition is breaking down faster or which is following. Tracking the rituals associated directly with building are actually harder to pinpoint.

Research on the derivation of house forms and their meaning may be approached in

terms of the past and the present. Patterns of social interaction need to be addressed and compared in each village. This study is yielding important data on the still emerging modern Turkey, and it will shed light on building practices and the use and re-use of space in much of the Middle East.

Acknowledgments

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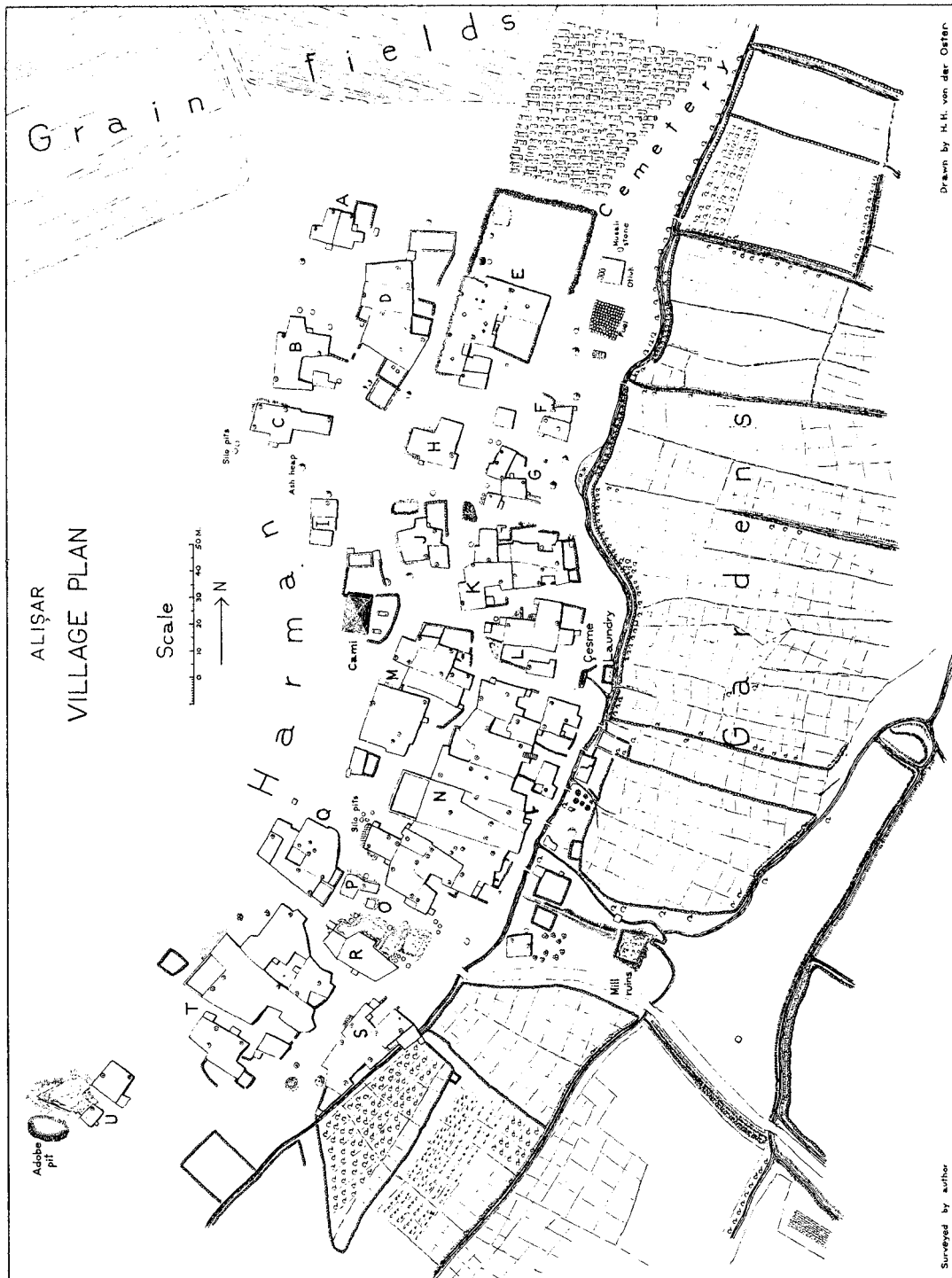


Fig. 1. Map of Alışar, after John Alexander Morrison, Ph.D. dissertation, University of Chicago, 1938. Mehmet Effendi complex and current-day R. Dursun complex is at 'E'. Just to the east at 'fuel and otluk' is the location of the current-day D. Dursun complex and to the south of 'G' is the current-day K. Zeyrek complex.

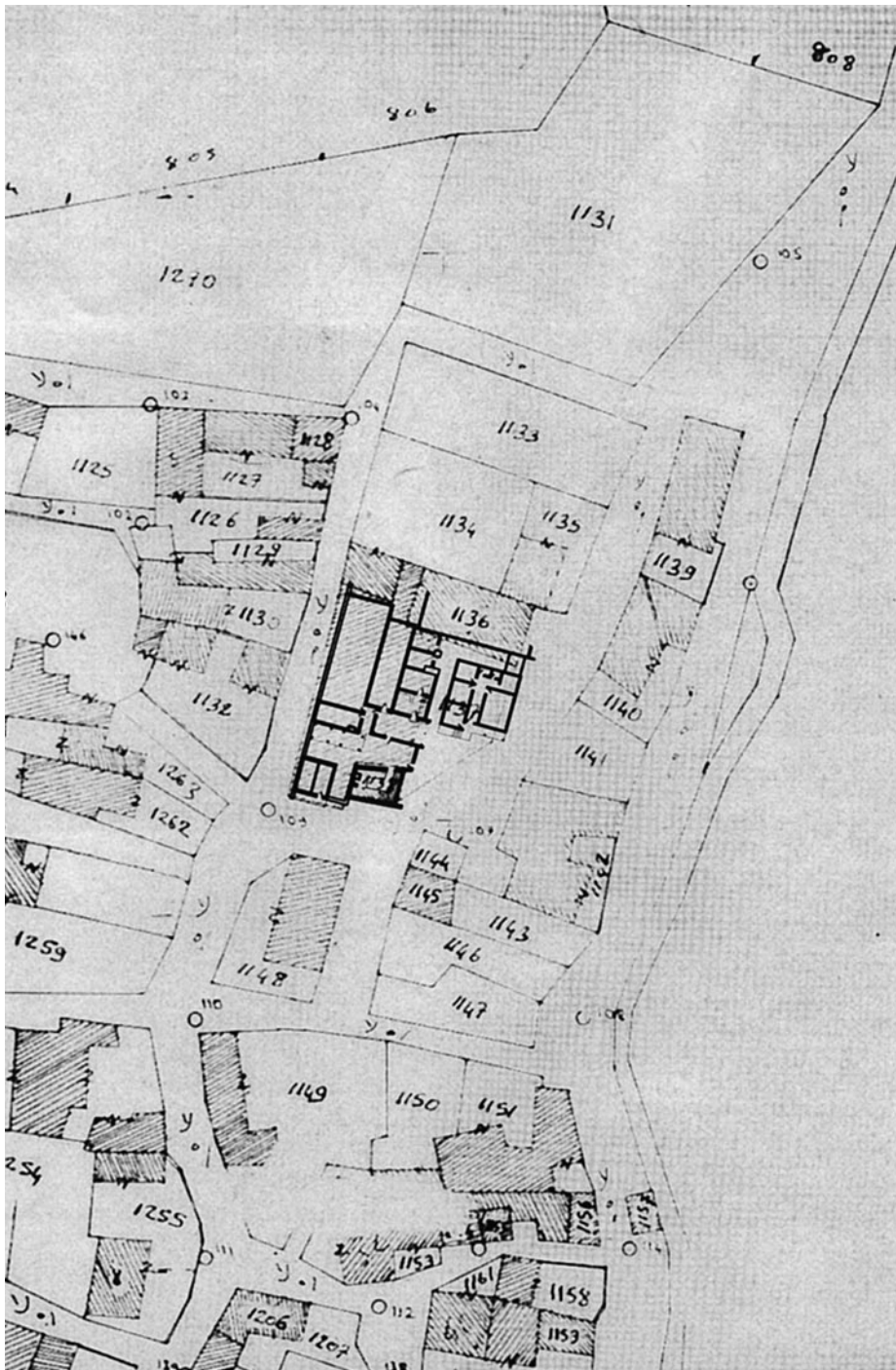


Fig. 2. Parcel map from 1974. Parcels 1136 and 1137 belong to R. Dursun; 1139 and 1140 belong to D. Dursun; and 1151 belongs to K. Zyrek.

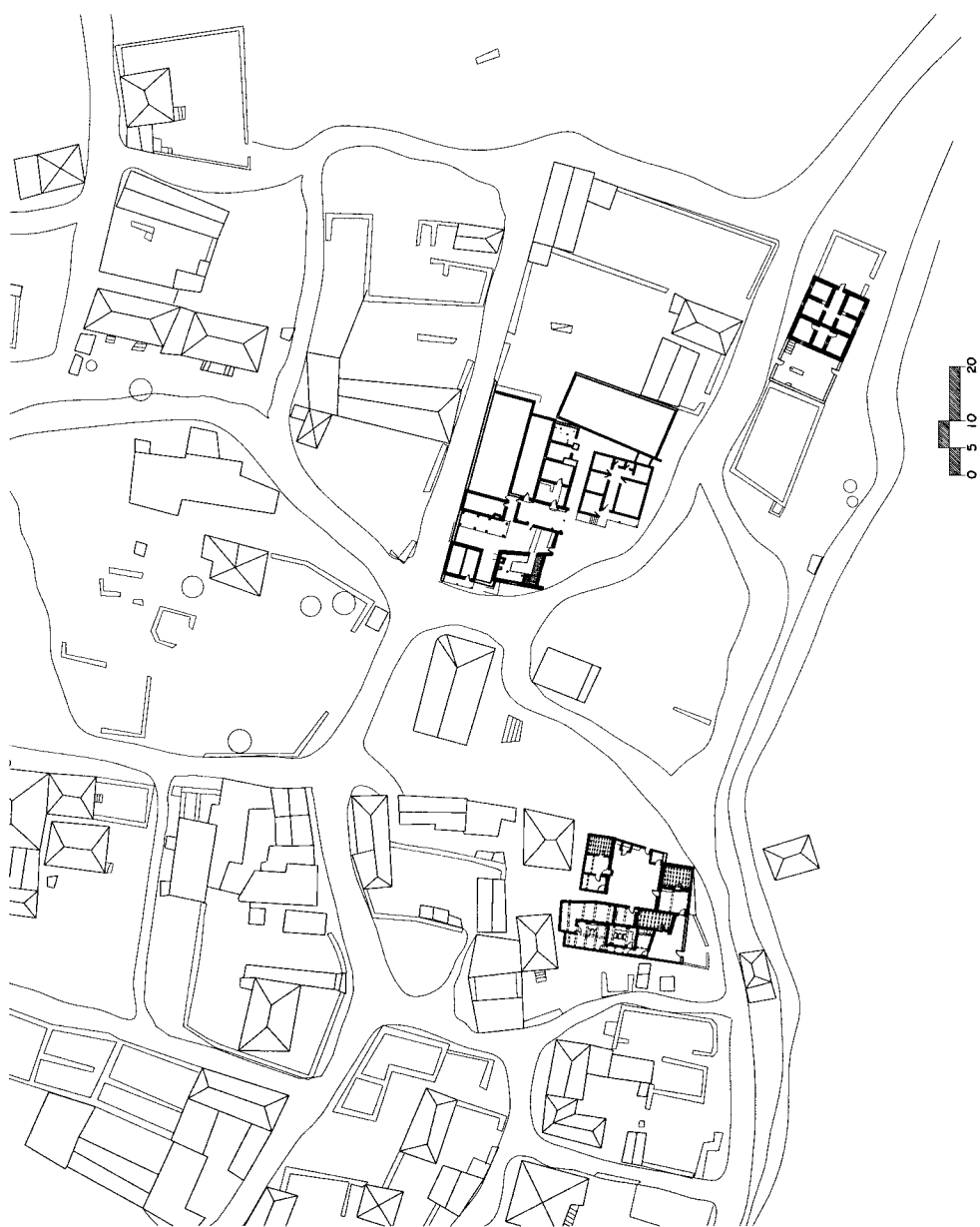


Fig. 3. Map, 1999, shows roof plans of northeast portion of village with plans of Dursun, Dursun and Zeyrek superimposed. Compare to 1932 and 1974 maps, figs.



Fig. 4a. Photo view of the west side of the original Dursun parcel. A newly built village room on the near corner has traditional mud brick construction and is adjacent to an un-used open air space followed by a functioning cooking room and barn, 1999.



Fig. 4b. Photo view of the opposite east side of the house complex with non-functioning village room and horse stable on the near corner from Morrison's time. The still functioning 'hayat' space follows to the north and used to serve as the entry to the later home. Today the family lives in a new home yet uses much of their historic complex, 1999. See maps and house plans.

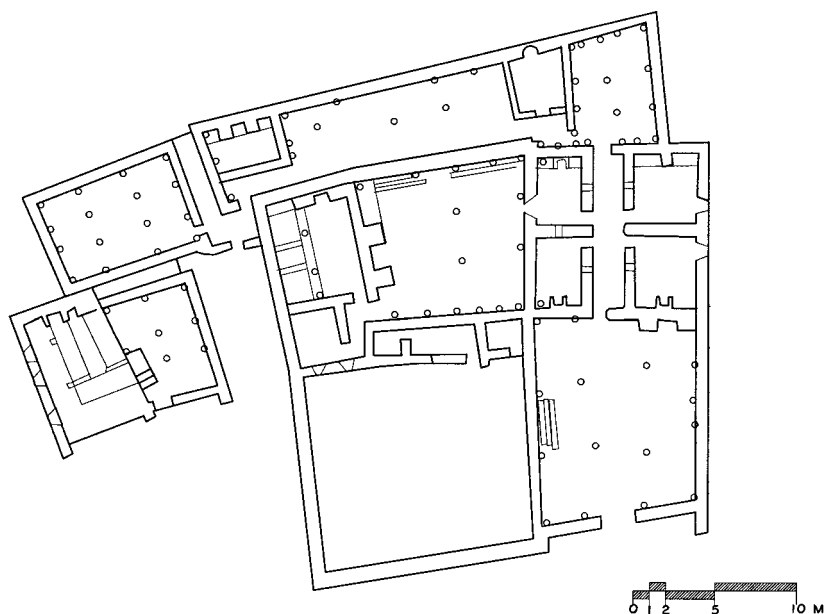


Fig. 5a. Redrawn plan of Mehmet Effendi house, after Morrison, with (from left to right) village room, hay storage, barn, sleeping rooms, house storage and large open walled courtyard, and four women's room with a covered hayat space in front of them to the right of the courtyard.

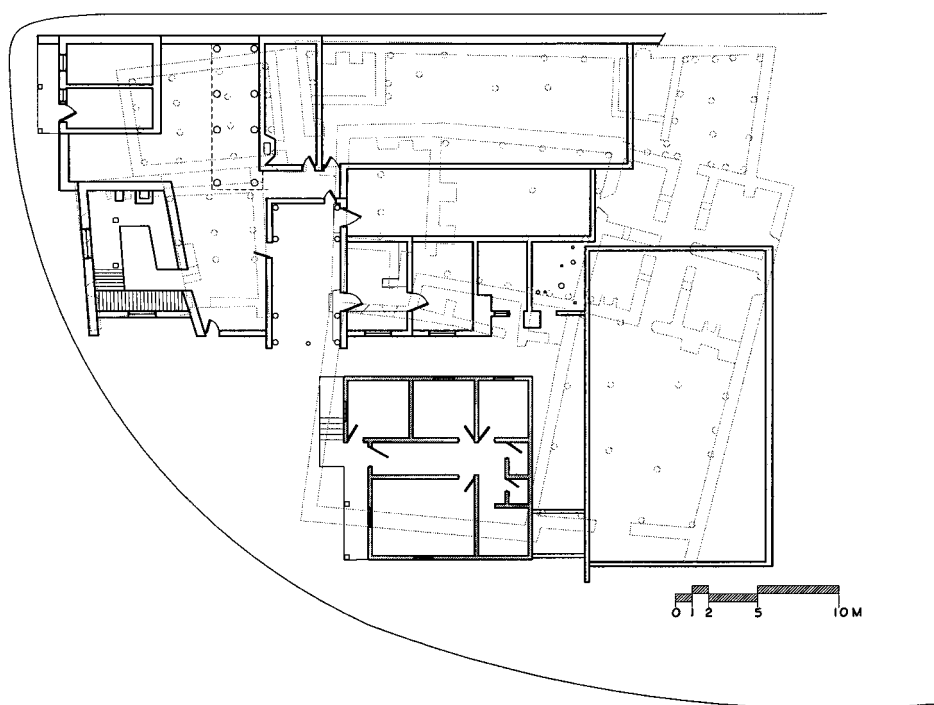


Fig. 5b. Plan of R. Dursun 'linear hayat' house complex built of indigenous traditional materials with new square 'central salon' home nestled in original courtyard space *superimposed* in black over Plan of Mehmet Effendi house complex (after Morrison 1932, fig. 52) in gray. According to interviews, possible relationships exist between the house documented in 1932 and the current dwelling documented in 1999 which has portions from at least 1932, ca. 1945 and the addition of the new home from 1995. Notice that the village room in the left bottom corner appears to be the same 1932 room.

The new square house appears to sit in the space of the original courtyard (see also fig. 1, map).

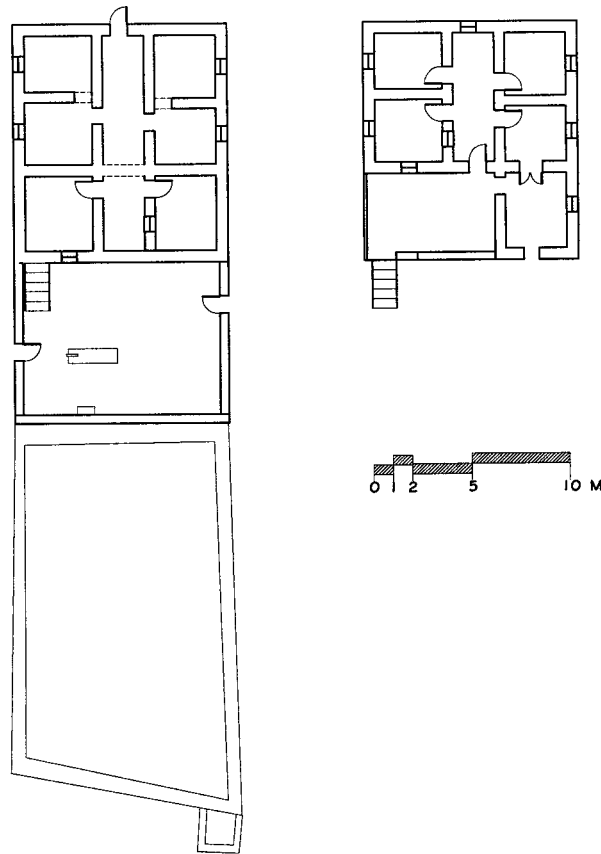


Fig. 6a. Plans of D. Dursun house complex with storage and bathing at street and courtyard level.

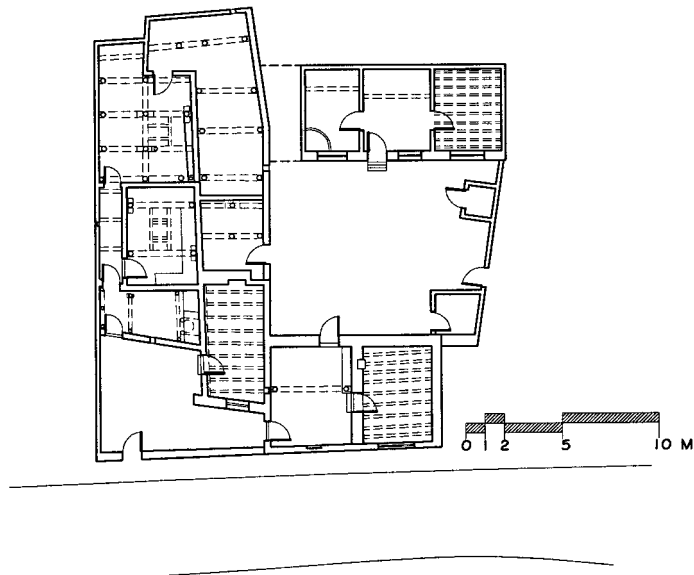


Fig. 6b. Plan of K. Zeyrek complex of three homes and cooking room, kitchen storage and barn.



Fig. 7a. Photo view of Alisar village 'quality' with community fountain nestled in with traditionally built house complexes and walking lanes, 1999.



Fig. 7b. Photo view of the Esenli town 'quality' with straight avenues and roads and unattached newly built homes, 1999.

ASSUR FIELD I 1990: THE EXCAVATION AND BUILDING REMAINS

G.R.H. Wright¹

INTRODUCTION

A test campaign was undertaken at Assur during the spring of 1990² as an initial part of the University of Munich's project to revive in a fitting way the German concession at Assur³, long renowned through the work of Andrae during the years 1903-13⁴.

The scope of this excavation programme was based on the results of preparatory investigations carried out during the previous year both on and off the site.

In Berlin the unpublished records of Andrae's trial trenches were analysed (these cut across the entire E-W breadth of the site at 100m intervals)⁵, while in the field a geo-physical prospection was carried out⁶ in conjunction with a totally new site survey. The latter was intended equally to provide for all future excavations, as also to govern the more exact recording of post excavation results⁷.

Study of Andrae's records favoured as a general locality for a new excavation programme was the undisturbed area in the central, western part of the site lying between Andrae's trial trenches 8 and 9. This is the region east of the (recently restored) Gargurri Gate (Craftsmen's Gate) and South of the Nabu Temple (Fig. 1a). It is an undulation plateau ca. 200 m E-W x CA. 100M N-S, perhaps the most exposed area on the site, windswept by both prevailing storm winds (the cold biting North Westerly and the sand laden hot South Wind).

This region was investigated thoroughly by way of a magnetometer survey yielding evidence of subterranean feature to the depth of ca. 5m. Thereby a salient anomaly was revealed centred on the (new) rectangular grid point (500E/750N). This appeared as a massive

¹ Baghdad - Leiden 1990

² Campaign personnel: Project Director: Professor B. Hrouda, Epigraphist: Professor W. Hecker, Surveyor: Professor M. Stephani, Archaeologists: S. Seidl and A. Hausleiter, Conservationist and Draughtswoman: C. Wolff, Photographer: K. Stupp, Antiquities Department Representative: Sayid Ferhan.

³ This important archaeological enterprise devolves from the understanding existing between Dr. Mu'ayyid Demerji, Director General of the Department of Antiquities and Heritage in Irak and Professor B. Hrouda. The finances for the initial work were provided jointly by the Bavarian Ministry of Culture and the University of Munich through the good offices of Councillor Dr. H. Zimmerman and Rector Professor W. Steinmann.

⁴ The results of this work are embodied in numerous monographs of the WVD OG series and are summarised in W. Andrae's *Die wiedererstandene Assur 2*, Munich 1977 (ed. B. Hrouda).

⁵ By Dr. P. Miglus.

⁶ By Dr. Becker and J. Fassbender.

⁷ By Professor M. Stephani and H. Domanschka.

chamber (ca. 8m x 7m) on the same orientation (ca. 025° T - 205° T) as surrounding features but constructed of different building material from them. The building material was evidently burnt brick and thus the unit was interpreted as an Assyrian tomb chamber or crypt of a type excavated by Andrea (Haller, *Gräber und Gräfte von Assur* WVD OG 65, Berlin 1954, pp. 100 ff).

The conjunction of these preparatory investigations pointed to the area about this putative grave chamber as a most auspicious place to begin the trial excavations. On the one hand Andrae's records showed Late Assyrian buildings virtually at surface level a few metres to the South in his Trial Trench 9. While on the other hand the geophysical prospection gave promise of significant discoveries by way of both structures and finds. Furthermore the excavation was likely to provide an immediate test for the reliability and utility of the magnetometer itself.

Four 10m x 10m grid squares, constituting an overall excavation area of 20m x 20m served to encompass the location of the putative grave chamber. This was designated Field I of the Munich Excavations at Assur. It is located ca 150m South of the Nabu Temple and ca 300m S.E. of the Gargurri Gate and it corresponds roughly to Andrea's 20m grid square 8v, eA. According to the nomenclature of the new grid system, the area is defined by grid lines 740N / 760N and 490E / 510E (the medial point being thus 750N, 500E). The four constituent squares were designated A, B, C, D respectively, reckoned clockwise from the NW square (i.e. the left upper square). Levels were run from a bench mark some metres away to the north. This was a survey point of the polygonal grid with the reduced level of 37.432m according to the system for contouring (as yet this bench mark has not been reduced to height above sea level). (Figs. 1A, 1).

The excavations were conducted in accordance with the DOG tradition of Mesopotamian archaeology. Since the area was known to be occupied by substantial structures the archaeological method was that of "structural archaeology" rather than that of "dirt archaeology". The area was marked out in four 10m x 10m squares as part of the overall rectangular grid oriented N-S (True) newly provided to cover the whole site. Section baulks 2m broad (i.e. extending 1m on each side of the grid lines) were reserved between the individual excavation plots, which were thus 8m x 8m. At or immediately below surface level room plans were apparent and thus offered alternative horizontal control for the excavations. Vertical control of the excavations was kept in terms of absolute heights (bench mark 37.432m) subject to the limiting factor of the generally well marked floors. As the excavations developed and the problems of the interrelation of the feature in the four excavated squares became specific, the sections were drawn (at a scale of 1:20) and the baulks removed, so that by the end of the season a continuous building plan was revealed over a sizeable area of ca 400m².

This feature was recorded in plan in the first instance at a scale of 1:100 (by a process of triangulation) on specially prepared board marked out with the graticule of the rectangular grid (Fig. 2). Where recognisable individual architectural units emerged, these were also drawn out in plan and section at a scale of 1:50 (cf Fig. 4). On these field drawings spot heights were marked to identify the level of all significant construction.

ACCOUNT OF EXCAVATIONS

Work was begun in square C as being that region most occupied by the putative Assyrian tomb chamber. Hence excavations were extended progressively to other squares or parts thereof – initially to facilitate possible approaches to the supposed tomb chamber. However, latterly the extension of clearance was directed to clarifying the relation of the various features excavated and to this end, as has been remarked, it was found necessary at the close of the work to remove the section baulks.

Very close (ca 10cms) beneath the surface level (ca 37.40) excavation in area C immediately revealed massive rubble structures which evoked no connection with Assyrian building (Fig. 3). The upper surfaces were at ca 37.30m level. In the north of the area, what appeared to be an East-West wall ca 3.5m long of very large loosely set boulders stood out from the B/C Section Baulk. It was surfaced with river pebbles. Later it was discovered to be founded very deeply, i.e. to go down 1.50m or more and to constitute a platform or the like rather than a wall. The south part of C was taken up with a rubble structure of a more conventional type (C2). Walls over 1m broad appeared to rest on a massive stone platform over 1m in depth. These walls had no fair face on the exterior but were heavily plastered on the interior. The floor (37.09m) however was of beaten earth. Both these installations whatever their function, could only be thought of as Parthian or later date.

Following these discoveries, on the east side of square C, exactly at the level of the above mentioned floor, there appeared the upper surface of mud brick walls forming a substantial chamber (C1). According to all appearances this was (Late) Assyrian construction (Fig. 2). Excavations were then extended to the North into squares B and A to verify the general presence of Assyrian building. Here, 20cms - 30cms below the surface, remains of several large pithoi appeared. Since these were unrelated to any building remains, they were presumed to be the relics of Parthian jar burial (although only vestigial traces of bones survived). At or a little below this level (viz. ca 36.90m) the tops of mud brick walls then appeared similar to those in C. This seemed to indicate that during Parthian times this region of the site had been used as a burial area with perhaps some of the ruined Assyrian mud brick walls still appearing at surface level.

Meanwhile, the mud brick structure (C1) in square C was cleared to floor level. This revealed what was to prove a general pattern, viz. the mud brick walls of the latest period were preserved everywhere to a height of ca 80cms above floor level. Here also very important finds were made consisting of a number of well preserved cuneiform tablets dispersed in the fill for 20cms - 30 cms above floor level. On preliminary study they proved to be from late Assyrian times (7th century BC) and to comprise records of commercial transactions. Normally this evidence would have been sufficient to date the mud brick building to the latter stages of the Assyrian age. However, in the particular circumstances this was not automatically taken to be the case. Preliminary study of the pottery found throughout the fill suggested it to be predominantly Parthian and according to this analysis it was supposed that the latest mud-brick buildings on the site were constructed / reconstructed / reoccupied in Parthian times and therefore that the Assyrian tablets had been brought in earth used for filling and levelling

operations. A further discovery did nothing to resolve this question. The door to this chamber was found to be provided with a secondary sill fashioned from two Assyrian burnt bricks. One was stamped with cuneiform characters which referred to the Middle Assyrian king Adad Nirari (ca 13th century BC). Thus it was clear that these bricks were reused and their incorporation into the fabric could have taken place equally in Late Assyrian or Parthian times.

At this point no structures had been revealed to the North, East and South of that region in squares B or C, where the magnetic prospection had located the anomaly interpreted as an Assyrian Tomb Chamber. Thus a structural anomaly subsisted here, if only a negative one in that it was devoid of feature. Some large fragments of glazed terracotta (which could only be from a Parthian coffin) had appeared in the fill, and eventually at a level of ca 36.75m ribbons of plaster became evident. These proved to outline the margin of a large enclosure, the walls of which had been almost entirely robbed out. The function of this plaster slick was indeed enigmatic and never became fully obvious. However, further clearance revealed a large enclosure oriented very nearly North-South (ca 006° - 186° T). It was of *Breitbart* form, in proportion a double square (overall dimensions ca 9m x 4.5m) with a medial entrance from the East (completely destroyed by the previously mentioned late rubble platform). Only in one limited stretch was the fabric preserved and shown to be of burnt brick (surviving to a maximum height of 3 courses). These bricks had no external face but were heavily plastered on the interior, the plaster running down via a quadrantal curve on to the floor (level 36.20m - 36.08m) which was constructed of re-used Assyrian burnt bricks (many of them stamped with the name of the Middle Assyrian king Tukulti Ninurta). On this floor stood several (four) more or less well preserved Parthian clay coffins (one of them glazed and decorated). (Fig. 4, Pl. I.)

Thus, this structure was at least in use during Parthian times and there was little evidence to suggest that it was not constructed at this epoch. However, both its original form and, above all, its relationship to the surrounding mud brick buildings were extremely difficult to reconstruct. Whether the Parthian burial area represented the anomaly on the magnetic survey could not be conclusively decided. It was roughly in the position indicated, but its form and disposition were at variance from that shown on the survey.

With only limited time remaining, an effort by way of judicious sounding was made to pursue the question of a possible underlying Assyrian Grave chamber. The North-East angle of this feature, as shown on the survey, should have appeared in the region between the Parthian Grave Enclosure and the mud brick buildings to the East and here (B4) it was possible to make a deep sounding. This revealed no significant structure of any sort but a deep deposit with evidence of destruction by burning continuing down to a floor level at 34.81m. To investigate the question further the brick floor of the Parthian Grave Area was taken up in the northern sector (i.e. within the limits of square B). Immediately beneath the Parthian floor appeared mud brick walls defining a grave chamber or cell containing a clay coffin of a somewhat different form than those in the overlying Parthian area (Fig. 6, Pl. IV). This coffin stood over a deep fill constituting a striking destruction level with ash, cinders and calcined brick. It was excavated down to the level 33.95m which appeared to be that of the foundation of the South Wall of the cell.

Parallel with this attempt to establish an earlier chronological stage, every effort was

made to clarify the nature and date of the mud brick complex by clearing it over the entire excavation area. This revealed a uniform development of non-monumental building on more or less the same orientation (025° - 205° T) having everywhere the latest floor level at ca 36.00m (Fig. 5). There were, however, apparent differences in the functional aspect e.g. C1 seemed of a superior class of construction, whereas B1 comprised a kitchen range. The structures in square A were large halls or corridors which gave onto more typically domestic looking building in square D, where separate apartments appear to have been added or built against one another.

The overall picture thus obtained of the planning helped to clarify the relationship of the Parthian Grave Enclosure to the surrounding building. Clearly this Grave Area with its different orientation was set into a pre-existing complex, the continuity of which is interrupted at several points. These points, where it broke across the earlier walls, were relatively few (four or five) and this disposition yielded the impression that the enclosure may have been designed and positioned with the pre-existing remains partly visible in such a way as to maximise the free space and to require as little demolition as possible.

Some additional information about the period of this mud brick complex was afforded. As has been noted previously, the latest floor stood everywhere at a level of ca 36.00m. This floor was generally well defined, but was less apparent in area D. For this and for other reasons soundings were made in a number of places below the 36m floor level (Fig. 7, Pl. III). In sum these soundings showed that the latest period of the mud brick complex was a rebuild in the same manner and on more or less the same lines of earlier structure with floors 50 cms – 70 cms below the latest floor level, i.e. at ca 35.40m. This clearly indicated that there was no cultural discontinuity between these two periods, they both belonged to the same epoch. And this epoch was not left unattested.

In square D (in the east part of D2 and in D3) many more cuneiform tablets were found similar to those from C1. The tablets from D2 and D3 however came from fill above the lower floor, i.e. from the range of 35.80m down to 35.30m. Nonetheless, since these tablets were found at random in the fill, it was still possible to regard them as secondary, i.e. as deposited in make-up brought from elsewhere and thus as not determining the date of the building. Eventually however, more circumstantial discoveries were made. In the hall like compartment (A2) a small dais or platform of burnt brick appeared on the uppermost floor level recognisable (here 35.81m). Around this feature lay several intact water pots (amphorae) and a lamp (Pl. III, near scale). While set on and above the dais were numbers of soft, decomposed cuneiform tablets. Apart from their physical condition the tablets were identical in content with the other tablets found in C and D. Since these tablets appeared to have been purposefully placed on the brick platform, it is very difficult to envisage this act as taking place other than during the period when such tablets were in production or use – i.e. it is very difficult to date the burnt brick dais and the structural level to which it belongs (i.e. the latest floor level of the mud brick complex) to other than Late Assyrian times.

To recapitulate in summary form, the course of the excavations revealed remains falling into the following categories:

1. Surface and sub-surface features of rubble with floor level at ca 37.08m. These are stratigraphically later than (2). (Fig. 3).
2. A large grave enclosure with burnt brick walls and floor containing terra-cotta coffins of Parthian date with floor level at 36.20m. (Fig. 4).
3. An extensive complex of non-monumental mud brick buildings with floor level at ca 36.00m in the fill of which were numbers of cuneiform tablets dating from Late Assyrian times. (Fig. 5). The stratigraphic and chronological relationship between this and the Parthian Grave Enclosure is difficult to precise. This mud brick complex is largely a re-build of (4).
4. An earlier building period of the mud brick complex with floors at ca 35.40m which belongs to the same cultural horizon as (3) and cannot be far removed in date (Fig. 7). At this level are also various funerary installations. (Fig. 6).
5. In the limited areas where excavations were carried significantly deeper (squares B and C), e.g. down to ca 34.00m level, the debris indicated a great conflagration.

A description of the building remains is now given, ordered according to these categories.

DESCRIPTION OF BUILDING REMAINS

Rubble Installations at or near Surface Level (Fig. 3)

Surface observation indicates that such rubble structures were spread out beyond the excavation area. Some of them are quite strange in nature and very difficult to explain. Three types of feature are represented in the excavated area, but their upper level is the same – they survive to a height of ca 37.30m - 37.40m with associated floor level, where recognisable at ca 37.09m.

- a. On the west side of square D is a straight rather slight wall (breadth ca 0.50m) oriented due E-W. It is possibly to be associated with other walls of this nature evident on the surface, the nearest being 5m away to the south on the 740N grid line. This latter wall is regularly constructed of trimmed rubble and fragments of re-used burnt brick. No archaeological evidence survived near these surface walls to define their date.
- b. More or less strung along the 750N grid line are two very massive rubble installations – one already mentioned, located in the east part of square C and the other emerging from the western margin of square A. They are thus set about 10m apart on an E-W bearing and they are ca 3.50m or more long by ca 2.00m broad. The installation in square C is all of 1.50m deep and that in square A is ca 1m deep.

The construction of both is identical, consisting of a loose pile of sizeable boulders or large angular fragments of broken up stone. It is unlikely that this construction was ever stable enough to constitute upstanding masonry ca 1.00m - 1.50m in height, so the inference is that the stones were set down into a trench or alternatively that they were raised up in a surrounding

bed of earth. The upper margin of these two installations is surfaced with a thick bedding of river pebbles apparently to form a level platform or dais, presumably to be used as a footing of some sort. Additionally, adjacent to the square C installation subsist traces of an earth floor at ca 37.06m, i.e. about 25cms below its upper margin.

These installations are of considerable consequence in themselves and were important features in the latter history of the site. Whatever they are they were not walls. However, it is possible (for me) to precise their nature (and date) from their construction. The two questions are, of course, related and thus some slight information concerning both is provided by the associated stratigraphy and finds.

The installations are cut down into underlying feature. The square A installation cuts deeply into the complex of mud brick walls (III) and the square C installation cuts both mud brick walls (III) and the floor of the grave enclosure (II). Since the two installations are manifestly contemporary, they are later than the grave enclosure. The question is, how much later? The E-W sections across the grave enclosure (Fig. 11) appear to indicate that the rubble platform was installed when the grave area was encumbered with about 50cms of accumulation – i.e. to something about the height of the coffins. This interpretation is strengthened by the fact that within the interstices of the rubble were many clay coffin fragments. On the other hand, deep in the interior of the platform was a sizeable piece of dressed timber, which was quite undecayed. Its appearance was modern but it is by no means impossible that it was a survival from antiquity, since the stone matrix preserved it from contact with (damp) earth.

The balance of probabilities afforded by the above observations suggests that these rubble platforms are not of recent date. This in turn rules out interpreting them as Turkish gun platforms of the First World War or the like. There is however no evidence for any positive identification of their function in later antiquity. Very great labour was expended in heaping up the masses of rubble and it must have been expended for a specific purpose. The installations can not be conceived as serving residential or defensive interests. Thus the only functional category which seems in any way relevant is industrial. However, it is difficult to imagine what industrial operations would require a base platform of 10-12m³ of heavy rubble.

c. The southern half of square C was occupied by (part) of a sizeable rubble building with an internal breadth of more than 5m (Fig. 3). Once again, however, this building was unusual. The rubble walls are more than 1m in breadth, but they were not constructed uniformly. Indeed, in large part they were formed out of an aggregate of pebbles with some larger stones. This construction was heavily plastered on the inside, but showed no external fair face. In this fashion it gave the impression of forming a curbing rather than of being the remains of upstanding masonry. The construction was preserved to a height of about 30 cms above the beaten earth floor (at 38.08m) and that it was ever carried up much higher is not certain. Should it have been a low curb wall, then again the nature of the building is not obvious. At first glance, with its heavy internal plastering, it gives the impression of a water basin, but the floor as revealed is of earth. Moreover, the northern wall appears to rest on heavy substructure of large stones, ca 1m deep, as though some particularly massive support was required. Thus once again the construction suggests that this rubble installation was intended for some industrial function.

In this instance some definite material evidence was provided by the finds. Dispersed through the fill in and about the structure were many "kiln spacers", those three-pronged ceramic devices used to keep open shaped pots from coming into contact when stacked for firing in a kiln. Thus it seems that a pottery kiln existed somewhere in the vicinity. Other indication of this also came to hand by way of wasters and kiln refuse (slag, etc.). Exactly how the rubble building related to potting facilities is not clear on the evidence presently available, but presumably extension of excavation immediately to the south would throw light on this question.

Finds additionally afford some information concerning the date of the rubble building. Kiln spacers are only necessary for glazed pottery. Therefore, in this region it can be said that they are of Parthian or later (Islamic) date. There is possibly also indication of a final terminus. This rubble installation like the others is virtually at surface level and general appearances suggest that it may have been used (or reused) in some way during recent times. On the earth floor were considerable traces of burnt wood and corroded nails, suggesting remains of a (modern?) door. Furthermore in this connection there was another and quite different discovery which was very curious and worth mentioning. At the end of the season the central north-south section baulk was removed. At its southern extremity the baulk lay adjacent to the western wall of the rubble building, and in that region the earth was loose and friable denoting a recent disturbance. Here four intact beer bottles were discovered at a depth of ca 1m+ (in fact not far removed from some cuneiform tablets). These beer bottles bore a stamped legend in Japanese script reading "Great Japan" and were identified (by Koreans) as belonging to the period of Japanese imperialist expansion during the thirties.

Parthian Grave Enclosure (Fig. 4, Pls. I & II)

This feature was the most salient discovery of the excavation and its general nature, function and period were clear. However, much of the detail of its construction and installation remains uncertain. The plan may be outlined as follows. It was designed as a sizeable broadroom unit, in overall proportions a double square (9.00m x 4.50m external dimensions) with an axial entry (doorway ca. 1.20m) on the eastern long side, most probably effected via a small approach chamber or the like which was subsequently destroyed. The very solid floor of reused Assyrian burnt bricks was walled around to a height of at least ca 50 cms by smaller burnt bricks (ca 29cms x 29cms x 7cms) set on rubble foundations. Both the brick floor and the internal face of the walls were given a continuous coating of heavy plaster. Four clay coffins remained standing on the floor of this enclosure: three (unglazed) reasonably intact, and one (glazed) largely broken up.

As opposed to this rather straight forward description, it is not possible to settle the overall appearance of the feature in elevation. There are two related questions, both more or less undetermined: the relative level at which it was installed and its roofing. These two questions must be discussed together.

It is clear that the floor of the grave area (at ca 36.08m - 36.20m) was sunk somewhat beneath the surrounding ground level, so that in some measure the grave area was an under-

ground feature. This follows from the slight construction of the walls (they are of a single, 30 cms, brick thickness) and they have no proper external face. Where preserved they are clearly a revetment to the surrounding earth and not a free-standing structure. In this fashion it is possible that some form of solid roofing could have been set over them, which arrangement would be most unlikely if they were flimsy free-standing walls. In fact the only possible roofing construction is transverse barrel vaulting. This entails a span of nearly 4.00m and thus a rise of nearly 2.00m. In this way the crown of the vault would be at least 2.50m+ above internal floor level(ca 36.10m - 36.20m). Thus the extrados of the vaulting would attain a height of ca 39.00m standing head high above present ground level in the vicinity (ca 37.30m) and therefore standing to a somewhat greater height above the ancient ground level. All of which is to say that if the grave enclosure were roofed it would have been a largely free standing structure.

To gain an overall picture of such a structure it is necessary to have some idea of the level and nature of the surrounding terrain. In later antiquity the surrounding ground level was probably no higher than it is at present: while, on the other hand, the level to which stood the remains of the surrounding mud brick walls was no lower than at present, viz. ca 37.00m. If these pre-existing walls were completely covered with earth then the ancient ground level in the vicinity was ca 37.00m - 37.30m, i.e. little different from the present day.

The alternative picture is that when the grave enclosure was installed the pre-existing walls were preserved to a greater or less degree standing above contemporary ground level. In this case two distinct images subsist: either the stumps of ruined walls stood up above a ground level somewhat lower than the present day or these walls were still in commission and the area was a built up area. In the former eventuality the vault of a roofed grave chamber would have stood to a considerable height above ground encumbered by ruined walls. In the latter eventuality the structure of the grave chamber would have been inconspicuous, masked by the surrounding buildings. Both circumstances are theoretically possible, and in either event there would have been no sanitary problems as the burials would be closely immured. Details of these solutions fall to be discussed later in connection with the stratigraphy and chronology.

Here, however, it must be said that from the debris within the grave area there was little evidence of remains of vaulted roofing. Vaulting could have been effected in either rubble or bricks, almost certainly the latter. A considerable quantity of burnt bricks (or broken bricks) appeared in the fill, but this could well be accounted for as coming from the collapsed walling. These circumstances together with the formidable span raise the strong possibility that the area was an unroofed enclosure open to the air. This possibility, in turn, evokes problems of sanitation and these vary according to the imagined setting of the area.

Clay coffins set in a grave area away from habitation would not necessarily constitute a health hazard, however it is hardly likely that clay coffins would be left standing in an open grave area surrounded by habitation. In fact, as will be discussed later, there is no strong evidence to show that the surrounding mud brick buildings were in commission during the time the grave enclosure was in use. It is moreover in any event not very likely that the clay coffins were left standing in the open after use. It is much more likely that they were covered with earth. The coffin would be installed in the enclosure and the body brought thither on a

bier to be disposed in a coffin. This would then be closed by its lid and buried in earth to be dug out if and when required for a later burial. Although such a proceeding would be possible within a built up area, it is more likely that when the grave area was in use this part of ancient Assur was not an inhabited area. This is the most probable *mise-en-scène* for the Parthian Grave Enclosure and it remains now to adduce what evidence there is available in this connection by way of analogy.

Many Parthian burials were excavated at Assur by Andrae (*Die Partherstadt Assur*, Leipzig 1933, WVDOG 57) and were reported on succinctly and informatively (Partherstadt, pp. 91-101). He apportioned them to 7 categories of which 3 are relevant in some way to the Parthian Grave Enclosure, viz. *Terrakottasarkophagen*, *Grüften* and more remotely, *Grabhäusern*. He also noted specifically that a principal concentration of Parthian burials occurred in the area south of the Nabu Temple, where (at its southern margin) is situated the Grave Enclosure. However, it is not possible to assign the Grave Enclosure immediately and absolutely to any one of Andrae's three categories.

The gamut of Andrae's *Terrakottasarkophagen*, both glazed and unglazed, (Partherstadt, pp. 93-96), exactly comprehends the clay coffins from the Grave Enclosure (Fig. 12). However, the clay coffin burial *per se* is constituted by the direct burial of the coffin in the earth (they were found from 5cms - 170cms below the existing surface). The coffins in the Grave Enclosure were most probably covered with earth, but were set within a special structure. Obviously, it is Andrae's *Grüften* (Partherstadt, pp. 97-98) which most nearly approximates the circumstances and it is possible to reconstruct the Grave Enclosure entirely in accordance with this category – i.e. as roofed with a vault. Moreover, Andrae notes that whereas Assyrian burial vaults are all long room in form, some examples of broad room burial vaults occur in Parthian times. And one example, Assur 13972 (p. 98, fig. 50c) is very similar in disposition to the Grave Enclosure (NB its entrance, axial on the east long side, has disappeared and virtually all the vaulting!). However, the essence of Andrae's *Grüft* category is that they are entirely underground vaults (i.e. crypts) and it is not possible to reconstruct the Parthian Grave Enclosure as an underground vault. If valued it is largely an upstanding building.

The latter feature allies it with Andrae's *oberirdische Grabbauten / Häusergräbern* category (Partherstadt, pp. 98-101). This category is not reported on as adequately as the others (sections are lacking). However, it is clear that the type as conceived is quite other than that to be seen in the Grave Enclosure. The *Grabbauten* show a multi-chambered (house) plan carried above ground in normal upstanding wall masonry – it is to some degree a relative of the tower-tomb. However, that Andrae's individual examples all fall clearly into his several categories is another question and later reflection has seen something approaching a continuum *Grüft* and *Grabbau* (cf especially Reuther in Pope I p. 439). In particular *Grüft* 17699 (p. 98) and *Grabbau* V (p. 99) are by no means dissimilar, the latter being at least a partly underground structure approached by a descending stepped shaft. Nevertheless, *Grabbau* V cannot be brought into association with the Parthian Grave Enclosure except for the fact that it shows at least one grave structure at Assur is partly sunk in earth and partly free-standing.

In short at Assur Andrae did not recognise an unroofed burial enclosure and considered

all vaulted chambers as underground crypts, while he conceived his Grave Houses as an essentially different type of free-standing building. He was also sure that the Parthian burials (of both sarcophagus and crypt form) which he discovered in the same area (south of the Nabu Temple) as the Grave Enclosure were made when the remains of previous Assyrian habitation in the region were out of sight and out of mind, and that the region was then not built up but was a more or less vacant burial ground. That he was fully correct in this latter interpretation is not necessarily so.

Further information concerning these matters is available from other Mesopotamian sites. A number of glazed terracotta sarcophagi were recovered from Kakzu, a site near Erbil, not far away from Assur on the Great Zab. These were published as objects (Iraq I, 1934, pp. 90-94), where the excavator speaks of many tombs and burials, but does not describe the circumstances, and unfortunately the account of the excavations is not readily accessible. In this fashion it is necessary to consider the evidence from southern Mesopotamian sites, above all in Babylon and Uruk.

In fact, the best account of relevant burial practices in the region comes out of the long continued work at Uruk (cf *Travels in Babylonia and Assyria*, London 1851). In the middle of last century Loftus had advertised the ubiquity of Parthian clay coffins at Uruk (*Travels*, pp. 203 ff) – be it noted these coffins in the south are characteristically of the slipper type unlike the larnax form of the North. Loftus mentions the coffins as occurring directly buried in the earth either singly or in groups, but also in “brick vaults” (p. 206). However, subsequent detailed notice of their excavations refers to the earth burial class. The preliminary report on the graves of the 27th campaign, 1968-1969 (UVB XXVI and XXVII, 1972, pp. 63-64) sets in evidence the progressive replacement of the old practice of burial in family vaults below house plans by the new practice of separate graveyards, where the coffins were disposed in good order. In the preliminary report of the graves of 29th and 30th campaigns 1971-1972 (UVB XXIX, 1979, pp. 32-33) the circumstances of the Parthian slipper coffin graveyard are discussed, emphasizing the fact that burials were made when the remains of the last preceding habitations in the area were still upstanding ruins and the deposition of the burials was made to accord with the surviving ruins. This latter circumstance is taken up in a useful survey of grave forms in Babylon (*Baghdader Mitteilungen* 3, 1964, pp. 157 ff). Here the general categories of *Wohnhausbestattungen* (house burials) and *Ruinenbestattungen* (burial among ruins) are discussed and controverted.

From all the foregoing, the following conclusions emerge:

The Parthian Grave Enclosure is an interesting item but it is hardly possible to reconstruct its original form in elevation with complete certainty. The broadroom plan of the enclosure asserts its Parthian date corroborating the evidence of the sarcophagi, moreover the plan is in fact very similar to Andrae's Gr \ddot{u} ft 13972 (Partherstadt p. 90, fig. 50c). If the area were roofed with a transverse vault as in Gr \ddot{u} ft 13972 then it was a predominantly upstanding building, not a subterranean crypt. Such a grave type is not specified by Andrae, who typifies his upstanding *Grabbau/Grabhaus* in a different manner. On the other hand, Andrae makes no mention of an unroofed grave enclosure. Burial of clay coffins, both sporadically and in organised groups, is a common form of sepulture at Assur and elsewhere in Mesopotamia, but

there is no record elsewhere of this taking place in specially built enclosures. As opposed to the traditional Mesopotamian practice of House Burial, these Parthian sarcophagi burials are usually made in graveyards, removed from habitation areas, very frequently (in Babylonia) within old ruin fields. Thus, as opposed to Andrae's opinion that the Assyrian ruins were not in evidence when the Parthian burials were made in the region south of the Nabu temple, it is quite likely that the area was chosen as a graveyard precisely because it was a ruin field.

Mud Brick Building Complex (Figs. 5, 7; Pls. II, III)

A reasonably coherent complex of mud brick buildings was revealed extending over a significant area (approaching ca 400 m²). These buildings were of non-monumental type and no less interesting for that, since publication of Assyrian remains has been concerned predominantly with monumental architecture (Preusser, *Die Wohnhäuser in Assur*, Berlin 1954, is a notable exception). Because of the uncertainty as to the period of this complex arising from the finds, considerable interest resided in the building characteristics as affording a means of dating the complex. In this connection, although a fairly extended plan was available, details of construction were more informative.

The overall planning is certainly of a domestic nature and the area excavated could equate more or less to one very large house – cf, e.g. *Das rote Haus*, v *Die Wohnhäuser*, fig. 11a. However, interruption by the Parthian Grave Enclosure has obscured the overall layout of the area and the planning units are not immediately obvious. In particular, there is no salient courtyard such as is held to be the nucleus of House Plans at Assur (*Die Wohnhäuser*, p. 18). In this connection one common sense observation can be made. The emplacement of the Parthian Grave Enclosure suggests that it was arranged to accord conveniently with surviving remains and thus it may be set as far as possible in an open courtyard area. In any event, as things stand, the area to the West of the Grave Enclosure (i.e. squares A and D) contains the coherent elements and these could well belong to one medium sized (ca 200 m²) or more likely, to parts of two smaller (ca 100+ m²) houses (cf houses to the South and West of Andrae's Winkelgasse e.g. houses 13 and 14, v *Die Wohnhäuser*, fig. 12).

In the circumstances it is perhaps more profitable to endeavour to recognise planning elements in the complex rather than complete house units. Some characteristics can be noted, both by way of presence and of absence. First of all, it is clear that there is no overall analytical planning with a regular balanced layout. Next it can be seen that the room form varies, but that there is a notable presence of the broad room. Also, it appears that corridor circulation figured in the planning. On the other hand, there is a complete absence of anything suggesting an Iwan and equally of point supports of any description.

The characteristics of construction are perhaps more circumstantial. These may be given in summary from as follows:

1. *Foundations*. Rubble stone in some form or other seems general below mud brick, either as foundation or as a socle.
2. *Upstanding Walls*. The masonry is of square mud bricks often on a socle (ca 40cms in

height of rubble). The standard brick dimension in the latest (36m floor level) construction is 40cms x 40cms x 13cms set to give walls of either 1, 1.5 or 2 brick thickness – i.e. of breadth ca 40cms, 60cms or 80cms. Some concern for bonding was shown with an effort made to break joint vertically but not necessarily in every course. In general the horizontal cross joints of broader wall were continuous but on some occasions they were broken. Bricks were set in mud mortar and at intervals, something like reeds or the like were inserted in the bed joints to give a notably thicker bedding. The wall faces were coated with a thick layer (up to 5cms) of mud plaster. Sometimes this bore traces of (earth pigment) colouring, and on occasions there was a finishing coat of gypsum or lime.

3. *Floors*. These as a rule are of beaten earth, but something like cobbles appears in places (which may be unroofed). There are also vestigial evidences of stone slabs and (burnt) brick paving.
4. *Doors*. As a rule doorways are simple apertures cut straight through the wall thickness without any refinement of detailing (framing, rabbeting, etc.). Sills are common, sometimes of stone slabs, sometimes of mud brick, more or less aligned with the wall thickness. However, the doorway in room C1 is a well detailed rabbeted doorway with a sill of re-used burnt brick, set only to the depth of the framing and there are double leaves opening into reveals. this is distinctly anomalous.
5. *Roofs*. There is absolutely no surviving evidence of the roofing – neither sections of mud on reeds or the like nor vaulting material of any description. However, the mediocre solidity of the walling makes it virtually certain that the roofing was standard flat mud roofing carried on wooden beams.

It might be thought that the above observations would be sufficient to fix the building period, particularly in view of the extensive and well analysed excavations of buildings carried out previously on the site. In fact this is not so. As things stands, the area of excavation is not sufficient to extract with certainty complete house plans, nor does the manner of building (in particular of building construction) identify the period. The characteristics enumerated accord almost entirely with Late Assyrian house building, the salient exception being the rabbeted doorway of C1, which is reckoned Parthian (Die Wohnhäuser, p. 16). However, many of the characteristics are ambiguous and could pertain equally well to Parthian houses (Die Wohnhäuser, pp. 15-19). This in itself constitutes a striking comment, viz. it is very difficult to distinguish (both in design and construction) between houses built at Assur in Parthian times and those built half a millennium earlier in Late Assyrian times (cf Die Wohnhäuser, p. 16).

The possibility that the latest floor level of the mud brick complex was (still) in use contemporary with the Parthian Grave Enclosure was studied at length, in view of the initial reading of the ceramic evidence. There are a number of (conflicting) considerations. First of all, there are no manifestly Parthian features in the building, i.e. ornamental façades with engaged half columns and stucco cornices etc. as in Andrae's Parthian Palace. However, this absence can be accounted for by the domestic nature of the buildings. In fact, there is a somewhat straggling ramshackle character to the building, which equally does not accord well with the massive regular structure commonly associated with Assyrian building. And this again can

be explained by the same token – viz. it is poorish domestic building, not monumental construction.

There is, of course, the rather striking anomaly of the moulded doorway in C1 which is very unusual for Assyrian domestic building, but normal in Parthian building. Since this doorway could give access to the Grave Enclosure (and furthermore the floor levels of both units are more or less identical), it was envisaged that at least this unit was functioning (as an approach) at the time of the Grave Enclosure. However, again it is possible to explain this feature in C1 by the character of the building rather than by its chronology – viz. C1 forms part of a superior non-domestic complex.

Perhaps the most enigmatic aspect of the connection between the Grave Enclosure and the surrounding mud brick complex is the circumstances where the structures come into physical contact (Fig. 10). The installation of the Parthian Grave Enclosure appears to have undercut the (pre-existing) walls slightly and there is also a suggestion that the walls were subsequently touched up to accord the more closely with the new installation. However, this evidence is so episodic that it cannot be insisted on. In sum, the best that can be said is that it is not completely impossible that (part of) the mud brick complex remained in commission when the Grave Enclosure was installed.

There is, however, a further matter to be discussed relevant to this issue. As has been noted, deeper soundings were made below the 36m floor level in various places (Fig. 7). These were sufficient to establish the fact that the earlier building style was virtually identical with the later (only the format of the bricks was in general smaller, ca 35cms x 35 cms). In fact, the later building period was largely a rebuild on the same lines of the earlier, although it was not possible to make a general plan of the earlier period without more general clearance and removal of later walls. However, one salient fact emerged. In almost every instance where excavation was carried out below the 36m floor level, evidence emerged. These sepulchral features are not only of interest in themselves, but they have a very definite bearing on the building period of the overlying structures. One distinctive change in settlement structure between Parthian habitation and traditional Mesopotamian habitation has been everywhere noted (Partherstadt, p. 91). It is that whereas the traditional manner of sepulture in Mesopotamia was “house burial”, i.e. disposal in one manner or another of human remains in, about and beneath the dwellings of the living, in Parthian times sepulture was confined to specific areas (graveyards) removed from habitation quarters. Thus, if the funerary evidence discovered beneath the 36m floors can be shown to be associated with the dwellings above, then almost certainly these dwellings are pre-Parthian in period.

Signifiant burial remains were found in A1, C1 and in B below the Parthian Enclosure.

The most notable remains were the two piece oval clay coffin burial in a mud brick grave cell sealed below the floor of the north-end of the Parthian Grave Enclosure (Figs. 6, 13). In view of the form of the coffin and of the pots associated with it, there can be little doubt that this burial was pre-Parthian. However, the installation of the Parthian Grave Enclosure has destroyed evidence of the relation of the burial to the original habitation remains in this area. The burial is set immediately below the 36m floor level and it is to be presumed that it was made in relation with the pre-Parthian building unit which originally stood in this area. This

was perhaps a main courtyard in view of the heavy walls enclosing the area to the North and East.

The other salient evidence is inside the room C1. Here the latest floor was at 36.20m and was a local rebuild of an original floor level at 36.00m. Subsidence in the former clearly showed the outlines of one end of a clay coffin, and when this area was cleared the coffin was revealed. It proved to be half of a two part unglazed clay coffin surviving as set, cutting down through the earlier 36m floor level. The burial was thus associated with the upper floor level of the chamber, although it is not perfectly clear whether the coffin was originally used as part of a complete full length coffin or that it stood for an infant burial. Moreover, there were no associate grave goods. Whatever the details, the presence of this coffin would seem to show the latest floor level as pre-Parthian or, on the other hand, that this later floor level was installed for non-residential purposes.

Evidence of a different nature came to light in Square A. Room A1 comprised a large space, perhaps a court or an enclosure. Deeper soundings were made in its southern half, and these showed small cells with cobbled floor levels at 35.50m and 35.16m. The conformation suggests that these may have been for burials (although no coherent evidence of such burials subsisted). On the other hand, in the fill of the north part of A1 were many, many fragments of unglazed oval clay coffins. To the degree that the overlying building can be brought into relation with these funerary remains once again it suggests that if this building is domestic it is pre-Parthian.

STRATIGRAPHY AND RELATIVE CHRONOLOGY

Although the Field I excavations were structures oriented, a reasonable idea of the dirst stratigraphy in the area was obtained and recorded by way of sections (Figs. 4, 10, 11). This showed the stratigraphy in outline to be very simple indeed. Beneath the thinnest carpet (2cms - 4 cms) of surface soil was a uniform deposit of clean, fine, grey (wind blown) soil. Beneath this was loose grey-brown habitation earth with charcoal, sherds, etc., lying on and over the latest floor at ca 36.00m. Both these layers varied in dept between 40 cms and 80cms to make up to the total height of ca 1.30m - 1.40m. The upper limit of the habitation remains undulates and passes sometimes at or above the tops of the mud brick walls, but on occasions these stand clear above the layer. Cut down into this lower habitation level and projecting up into the upper deposit are two successive structural features. First a grave enclosure and, after this, massive rubble installations. The precise level from which these features were cut down (or built up) is surprisingly difficult to determine.

There is no evidence visible of any destruction above the 36.00m floor level. Beneath the 36.00m floor level only sporadic evidence is available in section and it can be seen to vary according to the building unit. One general fact, however, is clear. There was no stratigraphical discontinuity or period of abandonment separating the 36m floor level from preceding occupation. The latest mud brick building level succeeded conformably without any great lapse of time to the immediately underlying level. Somewhere about the period of this earlier level

in certain limited building units there was a violent destructive conflagration.

The stratigraphic succession in the area is thus rather simple and obvious – so far as is apparent, there have been no confusing cut and fill operations in the vicinity. The difficulty of interpretation comes in assessing possible intervals between the successive features recorded. The datum point of departure for an elucidation is the generalised latest floor level of the mud brick building complex at ca 36m. Prior to that the episodic clearance shows various earlier floor levels set at levels ca half to one metre deeper. This accumulation devolves from interrupted habitation and may represent a passage of time in the nature of one or two centuries (cf estimates for comparable circumstances at Nimrud, v Nimrud I M. (Mallowan, London 1966, p. 197). In one restricted locality (apparently sepulchral) there is evidence of a violent destructive conflagration. The exact juncture in the stratigraphic record at which this conflagration falls has not yet been revealed, however in terms it must fall somewhere between the latest floor level and the earlier floor levels presently revealed of the mud brick complex.

Unfortunately, the period subsequent to the 36m floor is of a different complexion. Here the building remains do not form habitation levels, but are more or less isolated installations. Fortunately, the two categories of these installations are superposed, so their succession is clearly established (Fig. 11). However, the recorded stratigraphy does little to establish their respective periods of foundation and duration. The ground level, when the grave enclosure was installed, would have been given directly by the entrance passage / shaft, but precisely this area has been obliterated by the later rubble platforms.

From the last generalised floor level at 36.00m to the present day surface level of ca. 37.30m - 37.40m there is a rise of ca 1.40m in ground level. The upper margin of the habitation remains accumulated above the floor as shown in sections varies from ca 36.20m to ca 36.80m. One *de facto* surface level is given by the level onto which a mud brick wall in square A collapsed – this is ca 36.30m and in the upper surfaces of the bricks, i.e. ca 36.50m, a grave was fashioned. At this level and above are scattered remains of large jars which are probably associated with (child) burials. Thus it was probably from something like this level that the grave enclosure was cut down, i.e. from 36.50m+.

All the evidence suggests that this burial area was in use for some time (there were at least four coffins and probably more) and that it was eventually ransacked, either at the time of the destruction occasioned by the installation of the rubble platforms or previously. The difficulty in assessing the lapse of time between the grave enclosure and the stone platform is compounded by the incertitude of their form and function. If the grave enclosure were to have been a vaulted chamber, then the vault had either collapsed by the time the platform was installed or it was demolished to facilitate the installation (an unlikely event!). On the other hand, appearances suggest that the layout of the grave enclosure was still visible when the platform was installed, since this lies right on the axis of the chamber coinciding with the entrance. However, this can hardly be the rationale of its emplacement as the platform appears to be one in a line of such features.

In fact the only obvious information as to the level from which the rubble platform was cut down is somewhat indirect. If it be presumed that all the later rubble features are contemporary, then the floor level of the rubble chamber near by to the South (C2) is ca 37.08m, thus

the ground level in the vicinity should be akin and hence not far removed from its present day level (ca 37.30m). Perhaps this is to say that the ground level in the vicinity rose more during the period intervening between the grave enclosure and the rubble platform, than the period intervening between the platform and the present day. This however is very hypothetical reasoning, particularly in view of the uncertain function of the platform.

ABSOLUTE CHRONOLOGY

It is premature to make definitive pronouncements regarding the absolute chronology of Field I until the finds have been properly studied. However, it is possible to suggest an overall chronological framework. The point of departure for this is obviously the Parthian Grave Enclosure. This was evidently in use during Parthian times as evidenced by the clay coffins, notably the glazed coffin (cf Partherstadt, pp. 93 ff, Iraq I 1934, pp. 90 ff) and there is nothing to suggest that it was a reused Assyrian feature. Therefore its date is likely to fall during the first two centuries AD (v Partherstadt, pp. 2-3, Pope I, p. 415). Closer chronological analysis based on the form of the coffins, i.e. the larnax coffin (*Wannersarkophag*) as opposed to the slipper coffin type (cf Baghdader Mitteilungen 3, 1964, p. 158) is possible. However, the distinction as affecting Assur is likely to be regional rather than chronological. Roughly, the same date probably applies also to other more humble forms of burials which are found in the vicinity. These include the grave contrived by adjusting the bricks of the fallen wall in Square A, a sort of reserved or *Stulpziegelgrab* (cf Partherstadt, p.96; Fig. 47 k, 1, m). There are also remains of what are probably (child) jar burials.

From this historical juncture it is best first to work backwards into the past. According to all that is known of Parthian burial habits, the Grave Enclosure (and other burials) was set in an area removed from current habitation (Partherstadt, p. 91; A.U. Pope, *A Survey of Persian Art I*, Oxford, 1938, p. 441). Therefore, at this period the surrounding mud brick buildings must have been deserted ruins or even completely buried in earth. What then was the date of their latest use?

The accumulation of habitation remains above the latest floor level (at ca 36m) probably speaks for a period of use of about one or two centuries and there is no evidence of violent destruction. A number of cuneiform tablets were found both above and below this floor level. Some of them appear to be dated (according to Limu lists) at the very end of the Assyrian Empire (end of the 7th century BC) while others go back to the 8th century BC. The nodal evidence for dating this complex of circumstances – viz. the period of habitation of the mud brick building and its end – is the burial beneath the Parthian Grave Enclosure. Its importance lies not only in the evidence it provides for its own date, but also because of the relations it demonstrates with underlying evidence. Unfortunately, as yet excavation has not proceeded far enough to reveal these matters fully.

When the burnt brick floor of the Parthian Grave Enclosure was taken up at its north end there appeared in plan immediately below heavy mud brick walls which in the restricted space fortunately enclosed a small grave cell ca 2.5m x 1.5m. This cell contained a broken clay

coffin with a few bones and several intact pots lying inside it, or nearby, thus constituting an example of Andrae's *Sarkophaggräber* (v A. Haller, *Gräber und Gräfte von Assur*, Berlin, 1954, pp. 53-73). The coffin was highly characteristic. As opposed to the parallel sided, arch headed Parthian clay coffins of the grave enclosure immediately above (and it was lying exactly underneath the glazed Parthian coffin) this coffin was of "two part" ovoid form. This is exactly Andrae's *zweiteiligen Wannersarkophage* Type 2 (v *Gräber und Gräfte*, pp. 65 ff – cf e.g. Grab 758, fig. 82). Furthermore, there was an additional particularity evident in the burial. The coffin had been built up in height by placing terracotta plaques, bricks, etc. one on top of the other over the rim (doubtless to facilitate by corbelling an eventual closure with similar material). This process, of course, increases the capacity of the coffin for multiple burials. It is well illustrated and commented on in Andrae's work (*Gräber u. Gräfte* e.g.; Grab 760, p. 64, fig. 83; Grab 794, p. 69, fig. 86; Grab 813, pp. 71-72, fig. 89).

The chronological implications of this form of coffin are very significant indeed in the present circumstances. Entire clay coffins, complete in one part, are perfectly well known in Assyrian times (cf *Gräber u. Gräfte*, pp. 74 ff), although the two-part coffins are the more common. However, there is very little evidence of two-part construction of coffins in Parthian times. Thus, apart from analysis based on refinement of form, it is possible to conclude that a two-part coffin is pre-Parthian in date. A glance at the piriform and globular jars associated with the coffin corroborates this date (cf *Gräber u. Gräfte*, pl. 5, Nimrud I, p. 90).

The *Sarkophaggrab* immediately below the Parthian Grave Enclosure is, then, not from the Parthian period, but is Late Assyrian in style. But what is its stratigraphic relation to the surrounding mud brick buildings? Unfortunately, the most direct (i.e. vertical) evidence has been destroyed by the installation of the Parthian Grave Enclosure. However, prior to this it can be seen that the area was a courtyard or an unroofed enclosure of some sort (NB the vestiges of cobbled flooring to the East of the *Sarkophaggrab*); while the level of the burial is immediately below the general 36m floor. The burial was thus deposited either from the 36m floor period or belongs to the immediately prior period.

Some amplifications of the crucial matter is provided by the burial remains near by to the S.E. in Room C1. Here one half of a two-part clay coffin was found just below the latest floor, here a rebuild at 36.20m. This coffin is certainly not earlier than the 36m floor level period. The form of these two coffin burials thus affords dating evidence for the period of use of the 36m floor, which is as follows. The systematic publication of Andrae's coffin burials clearly shows that this type of coffin belongs not only to the Late Assyrian period, but equally to Post Assyrian times – i.e. the period after the downfall of the Assyrian Empire (*Gräber u. Gräfte*, pp. 71 ff).

However, perhaps the most interesting aspect of the burial below the Parthian Grave Enclosure is its anterior association. The coffin stood (base level at 35.03m) on, or rather in, several beaten earth surfaces (betokening multiple use). In the S.E. part of the cell, these surfaces were broken through and it was possible to sound below them. The results were striking and unexpected. The fill adjacent to the south wall extended downwards very deeply (almost 1.50m). Apparently, the lowest course of the wall occurred at ca 33.95m. In other words, the two-part clay coffin burial was made on the top of a very deep fill. Now this fill

throughout was lurid red with much calcined material (bricks) and also charcoal. It proclaimed a violent conflagration. However, nothing similar occurred elsewhere in the habitation levels of the mud brick building complex. The violence of the conflagration could not but suggest the historical sack of Assur ca 614 BC by the Median allies of the Neo-Babylonian power. However, the ostensible obstacle to this interpretation was the localisation of the phenomenon. Why should the capture of a city be expressed archaeologically only in a local (and sepulchral!) context?

In fact, as is well known, that seems to be the way things were. The specific (almost) religious destruction by burning meted out to the Royal Grave Crypts at Assur has been graphically described by Andrae (v *Das wiedererstandene Assur*, pp. 194-201). Equally, there is evidence of the same phenomenon at Nimrud, cf the conflagration in Chamber 34, brought to light by Layard and re-excavated by Mallowan (v *Nimrud I*, p. 190). The remarks of both Layard and Mallowan here might pass for comment on the fill in the Assur Grave. "The chamber had been violently burnt and the bricks turned to slag", and Layard remarked "that it had the appearance of a large furnace for making glass or fusing metal."

The import of all this is that one burial in the traditional Late Assyrian style was made in a burial chamber on top of remains of a violent conflagration and before a Parthian burial enclosure was installed above it. The obvious chronological inference is that the latest level of the Mud Brick Building Complex survived (or was revived) after the end of the 7th century BC and continued in use for some time. This parallels Andrae's excavation results since he found considerable evidence of a *nachassyrische* Town (e.g. the well known Temple A with its broad room Babylonian style plan – cf *Das wiedererstandene Assur*, pp. 238 ff, fig. 216).

On this analysis the 1990 Field I Excavations in the levels from 36.00m to 36.40m expose a chronological sequence, extending from ca 700 BC in the Late Assyrian period down through the destruction of the Assyrian capital at the end of the 7th century, and continuing on into the subsequent Neo-Babylonian era. During this time span the remains form part of a domestic quarter of the town. Then, after an undetermined period of decay, the more or less deserted region was used as a graveyard in Parthian times (ca 1st-2nd centuries AD).

The more problematical question now remains, viz. to suggest a fitting chronology to the uppermost 1m of deposit – from ca 36.40m to ca 37.40m.

There is no reason to controvert Andrae's general conclusion that the Parthian City of Assur was badly affected by Septimius Severus' campaigns in the region at the end of the second century AD and never regained prosperity (Pope I, p. 415), Partherstadt, pp. 2-3). Therefore, the final period of use of the Parthian Grave Enclosure can be put somewhere about 200 AD. Theoretically, the very massive rubble installation overlying the Grave Enclosure could have been set in place at almost any subsequent period down to most recent (i.e. Turkish) times. However, some common sense observations may narrow the possibilities somewhat.

It appears likely that the ground level rose appreciably between the period of the Grave Enclosure and of the rubble installation, therefore it is the less likely that the rubble installations were also of Parthian date. There is also a difficulty of principle here. The Parthians did not prefer to have their graveyards situated within habitation areas. Thus, unless

these rubble installations were sepulchral, it means either they were later than the Parthian period or (rather unlikely) the area had gone out of use as a graveyard and had been converted to other purpose by the Parthians.

Could these installations have been sepulchral and hence fall into place as a later Parthian exploitation of the area? True, the overall conformation of C2 suggests a curb wall enclosure, something after the manner of the Parthian Grave Enclosure. However, no obvious evidence of burial survives, although this is not to be wondered at since the feature is virtually at surface level. Nonetheless, there are perhaps some fugitive traces which could be considered in a sepulchral light. On the floor of C2 were found traces of burnt and decayed wood together with nails and other metal fittings. It is just possible to imagine that these devolve from wooden coffins. However, this is rather unlikely.

On the other hand, what clear evidence there is points to an industrial association (at least for C2). The kiln debris and multitude of kiln spacers indicate that glazed pottery was produced in the vicinity. In the nature of things this could be either Islamic or Parthian in date. If Parthian, then it means a potting industry was established in a former graveyard area. It is perhaps more likely to think of the glazed pottery produced here as Islamic – i.e. the rubble installations may be Islamic in date (e.g. Abbasid). This would set them midway in the stratigraphic accumulation between the Parthian Grave Enclosure and the present day ground level, which seems to be roughly the case. But this is only speculation.

Addendum May 2000

An interim report of the 1990 Assur Campaign was published by Professor Barthel Hrouda in MDOC 123. However, because of unforeseeable circumstances it has not been practical hitherto to publish any further material. Accordingly, with the kind agreement of Professor B. Hrouda and Dr. P. Miglus this report on one aspect of the work now appears exactly as written in 1990 immediately following the excavation.

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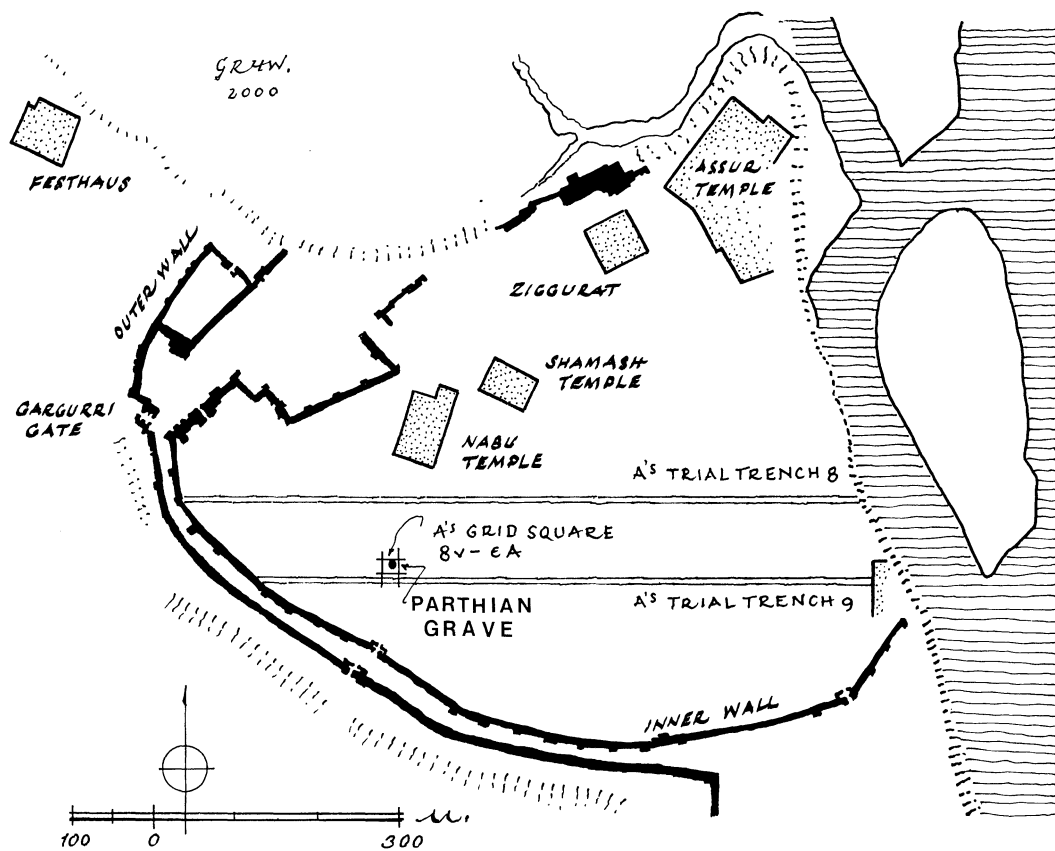


Fig. 1a. Assur North Sector. Location Plan of 1990 Excavation Field 1, situated between Andrae's trial tranchs 8 and 9 in the region of his grid square 8v-εA.

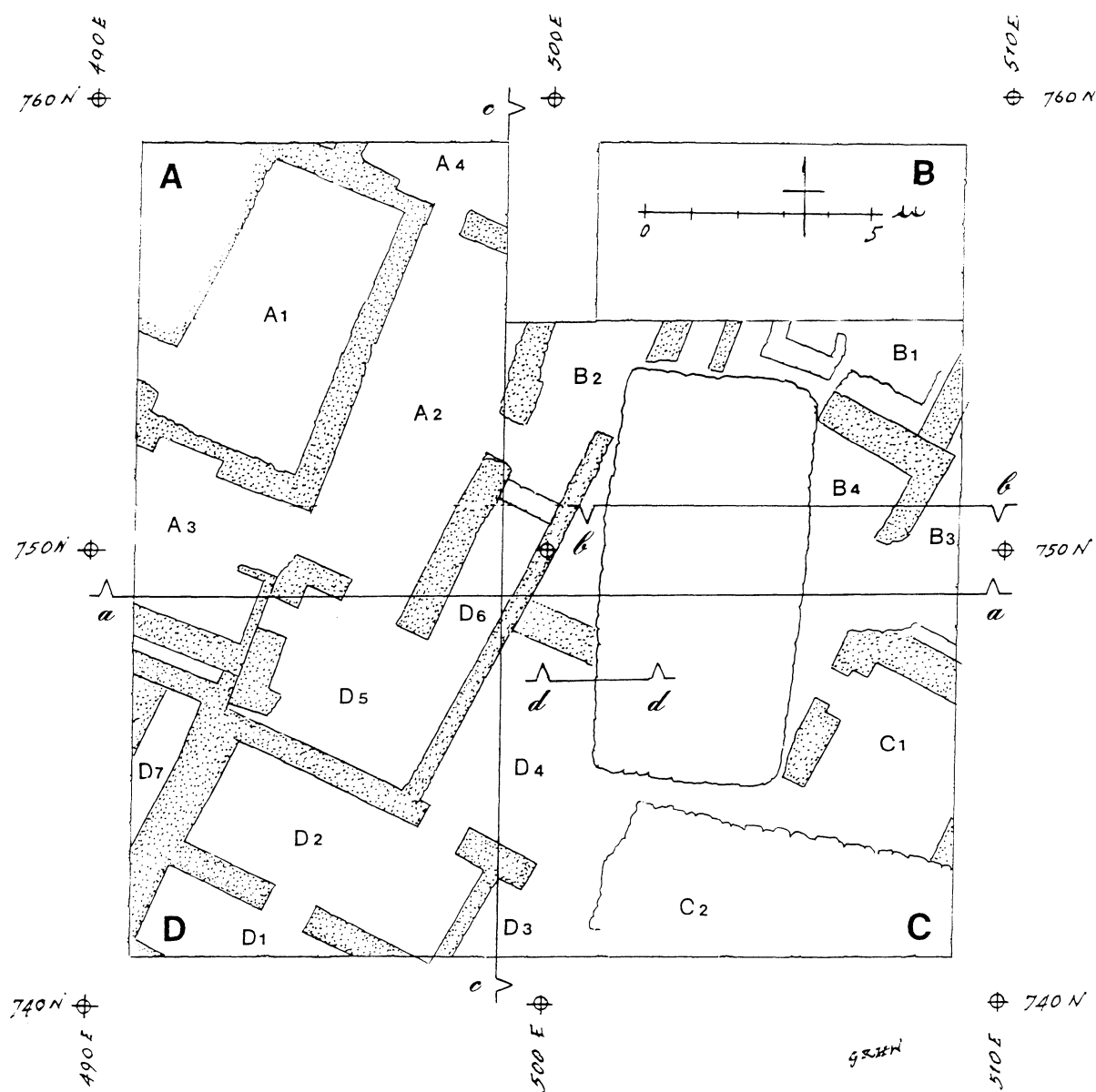


Fig. 1. Assur 1990 Field 1 - Key Plan of Excavations showing grid points, squares and section lines also preliminary room numbers.

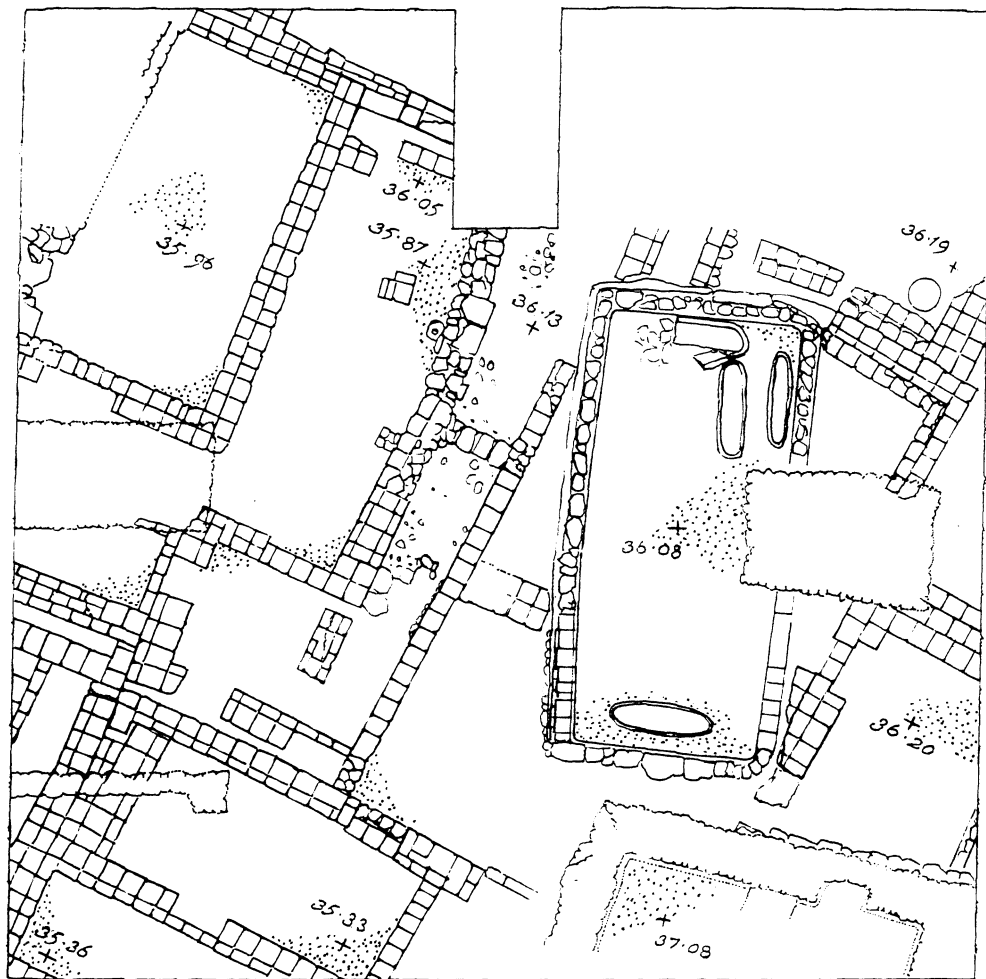


Fig. 2. Assur 1990 Field 1 - General Plan of Excavations.

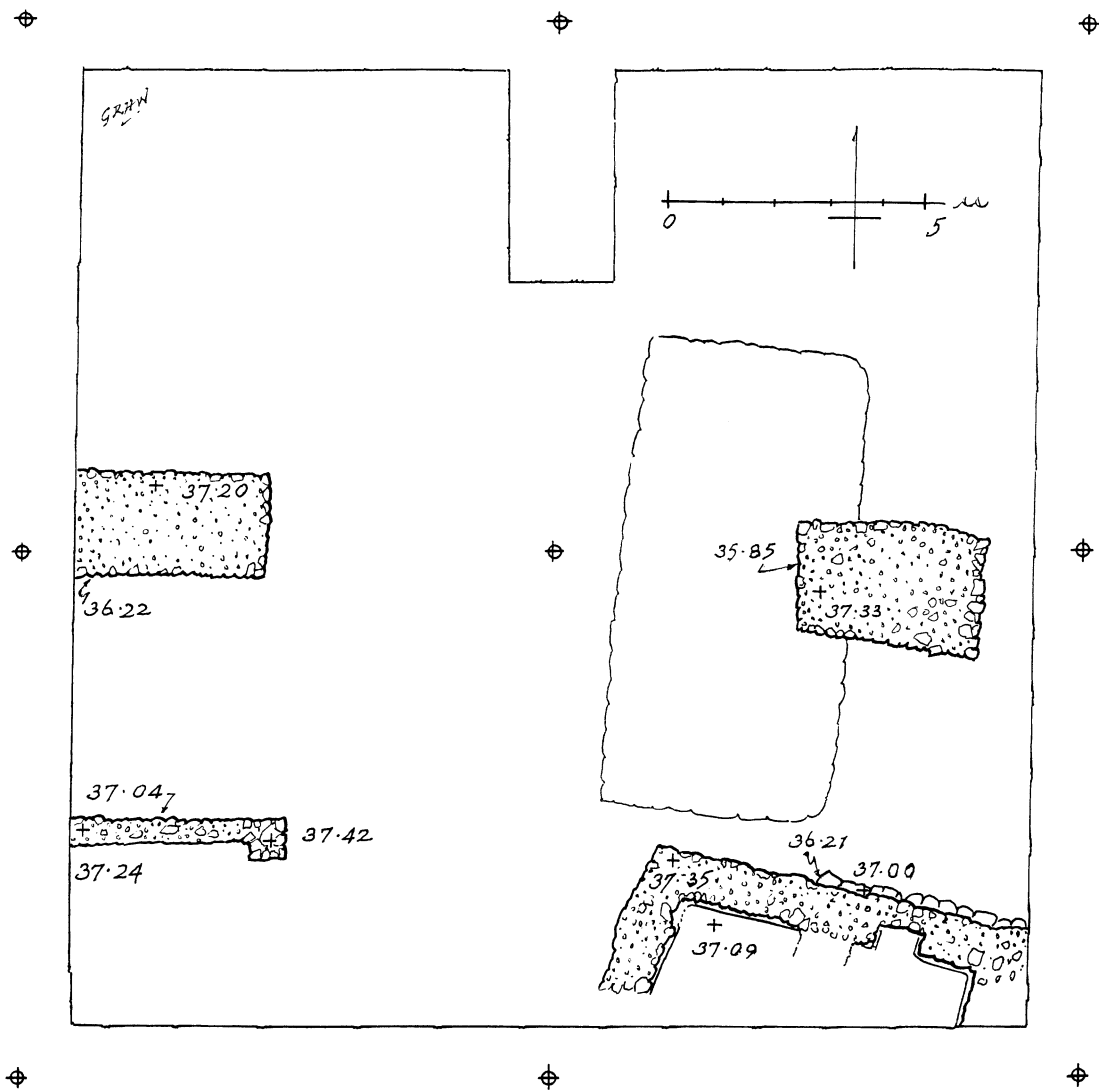


Fig. 3. Assur 1990 Field 1 - Plan of Late and/or Post Parthian Structures with (in outline) the Parthian Grave Area.

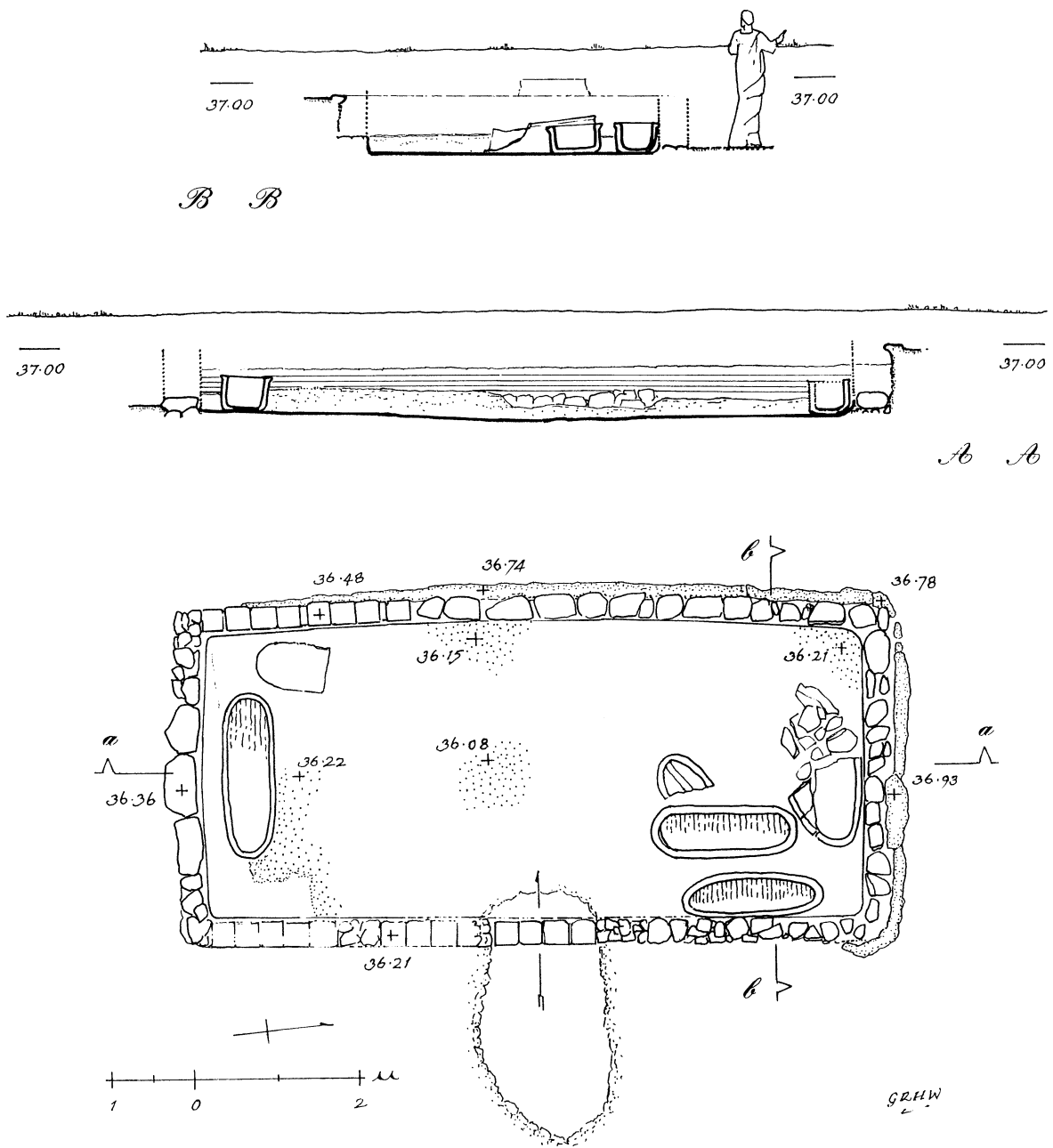


Fig. 4. Assur 1990 Field 1 - Parthian Grave Area Plan and Sections.

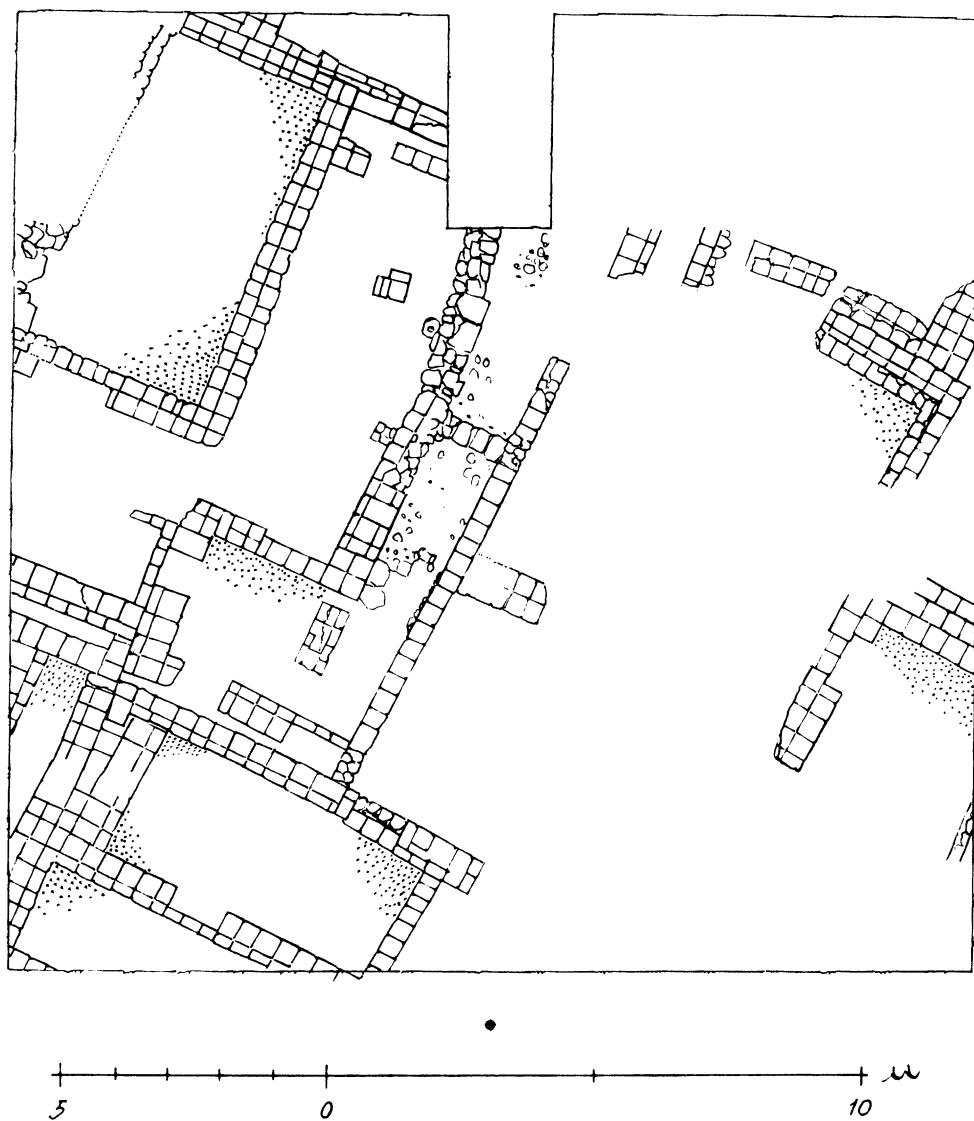


Fig. 5. Assur 1990 Field 1 - Plan of Assyrian Buildings.

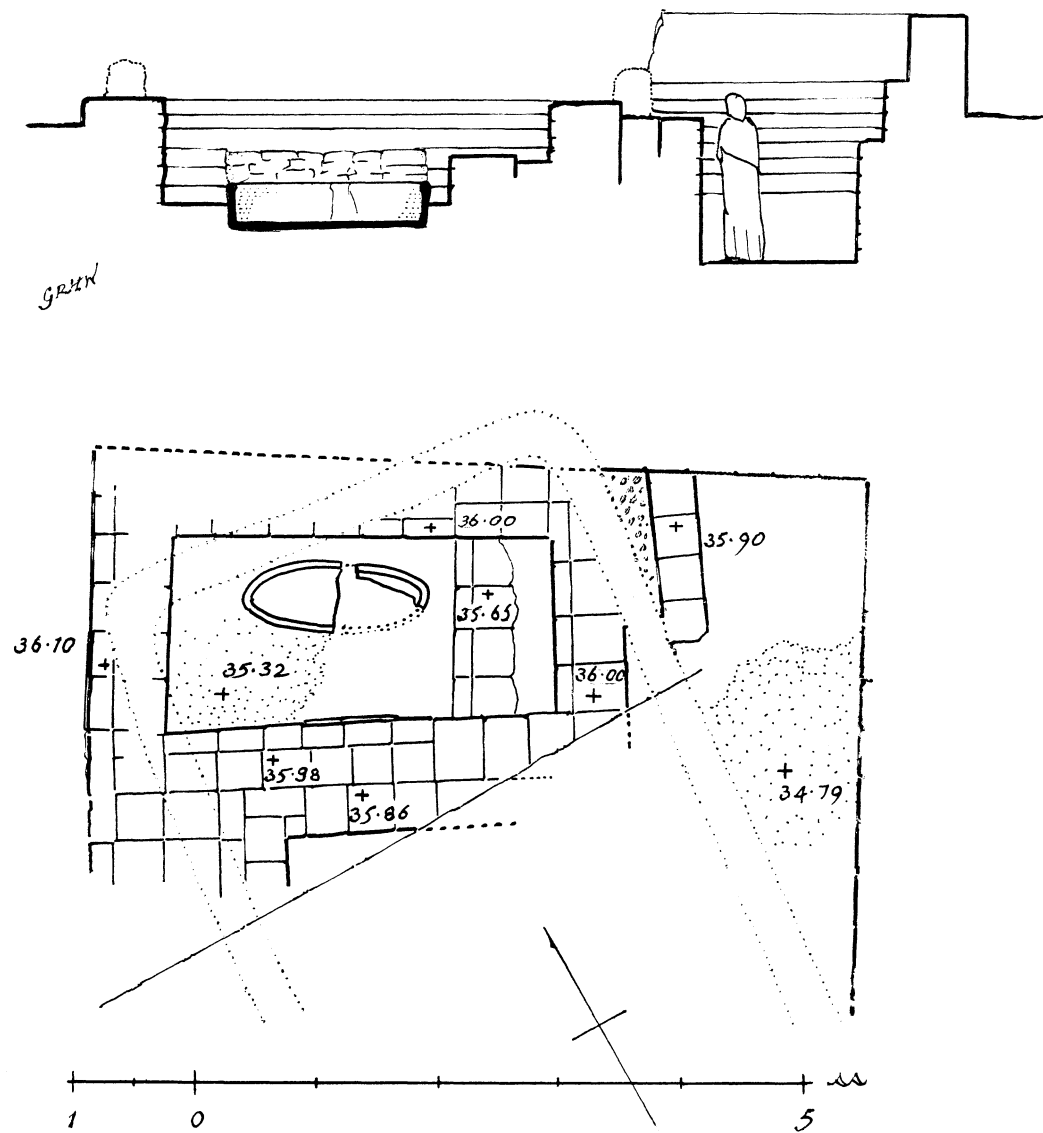


Fig. 6. Assur 1990 Field 1 - Assyrian Grave in Area B Plan and Section.

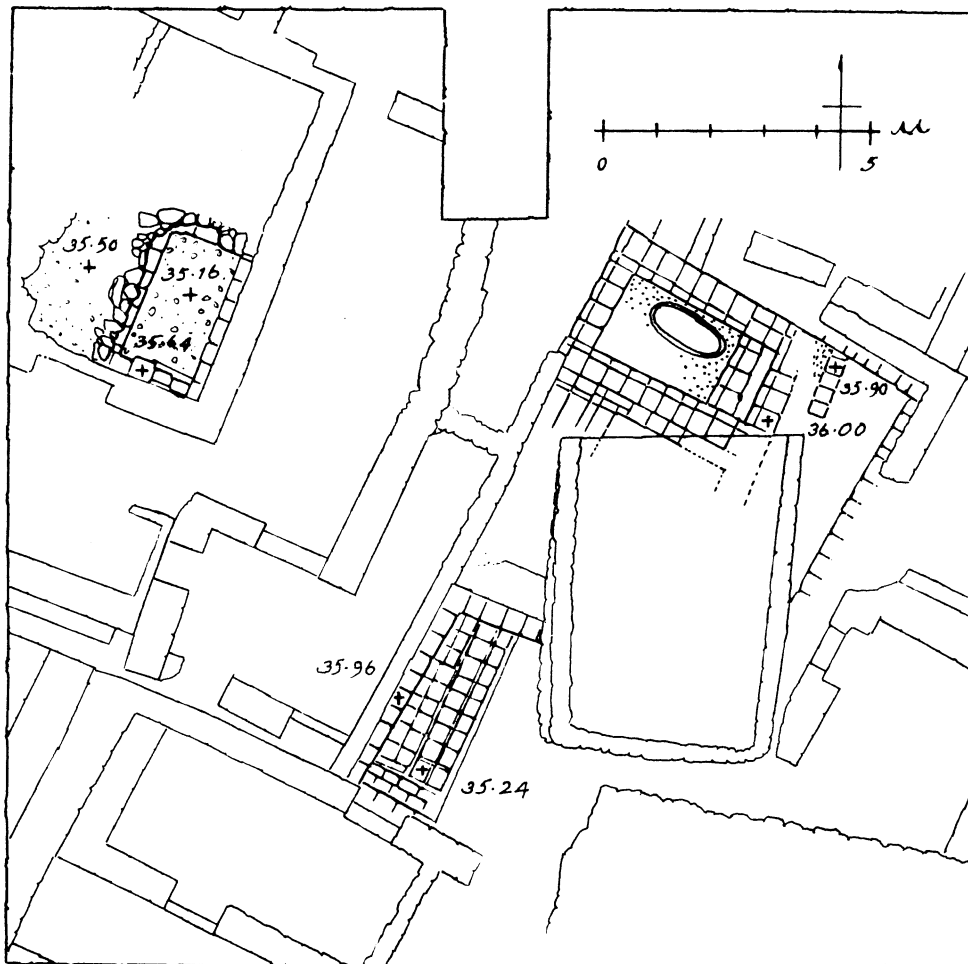


Fig. 7. Assur 1990 Field 1 - Late Assyrian Buildings - preliminary plan of pre-36cm floor remains.

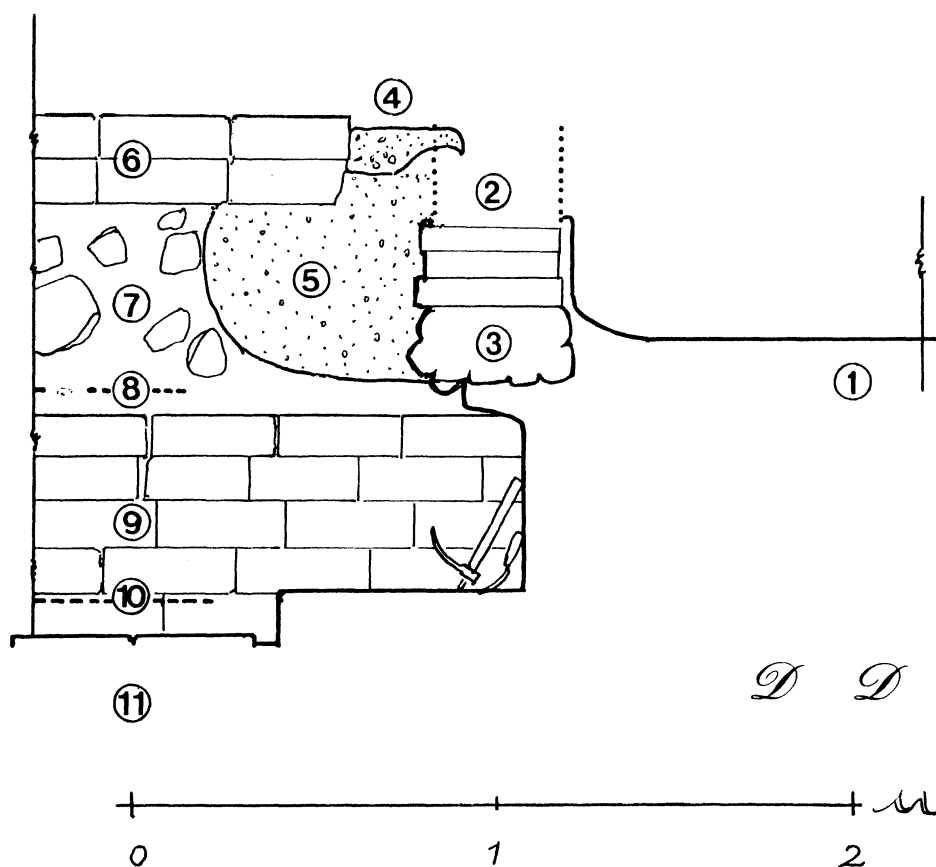


Fig. 8. Assur 1990 Field 1 - Section D-D.

1. Plastered Floor on Re-used Assyrian Burnt Bricks.
2. Burnt Brick Wall with Plastered Internal Face.
3. Rubble Foundations.
4. Plaster Margin or Curb to Parthian Grave Area.
5. Apparent Foundation Cutting for Grave Area.
6. Mud Brick Wall.
7. Stone Socle.
8. Level of Beaten Earth Floor (Assyrian).
9. Mud Brick Wall.
10. Level of Beaten Earth Floor (Assyrian).
11. Mud Brick.

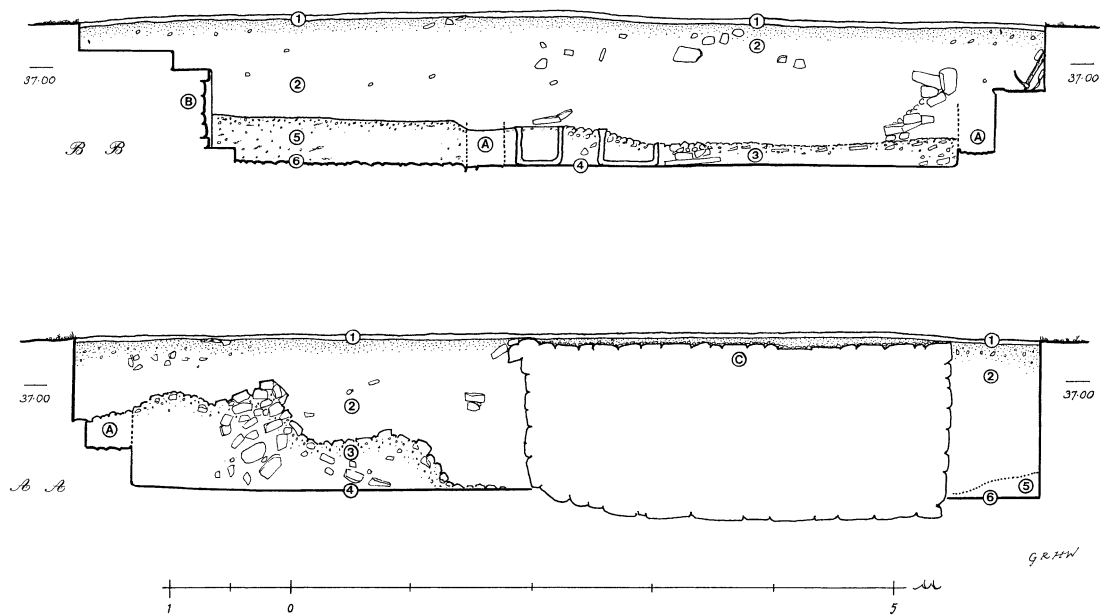


Fig. 9. Assur 1990 Field 1 - Parthian Grave Area Sections.

KEY TO SECTIONS

- A-A
1. Surface Soil.
 2. Compact Fine Grey Wind Blown Soil.
 3. Grey Earth with Burnt Brick Fragments.
 4. Plaster Floor.
 5. Loose Grey Brown with Sherds etc, Habitation Earth.
 6. Beaten Earth Floor.
 7. Stone Slabs (not in this part of the section).
 - A. Burnt Brick on Rubble Foundations.
 - B. Mud Brick (not in this part of the section).
 - C. Rubble.
- B-B
1. Surface Soil.
 2. Compact Fine Grey Wind Blown Soil.
 3. Grey Earth with Burnt Brick Fragments.
 4. Plaster Floor.
 5. Loose Grey Brown with Sherds etc, Habitation Earth.
 6. Cobbled Stone Floor.
 - A. Robbed out Burnt Brick on Stone Foundations.
 - B. Mud Brick on Rubble Socle.

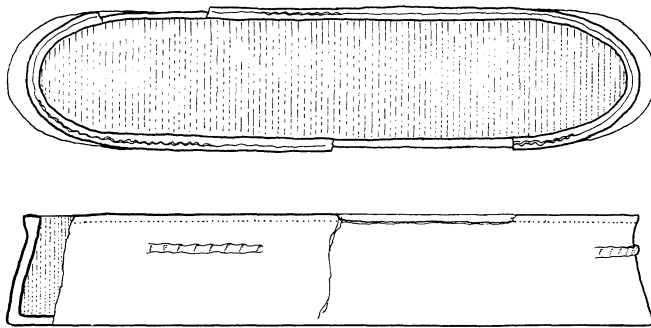


Fig. 10a. Parthian Grave Area, Coffin (1).

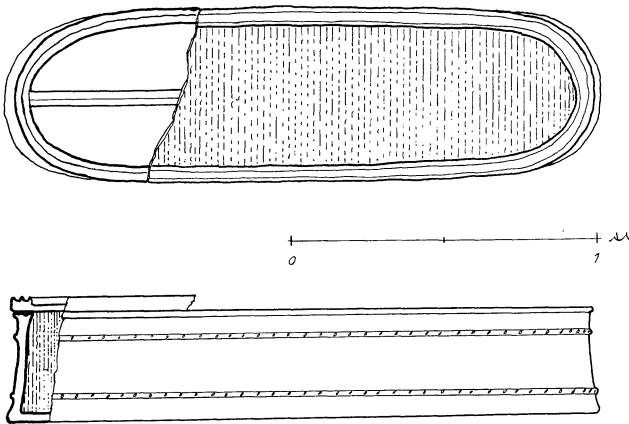


Fig. 10b. Parthian Grave Area, Coffin (2).

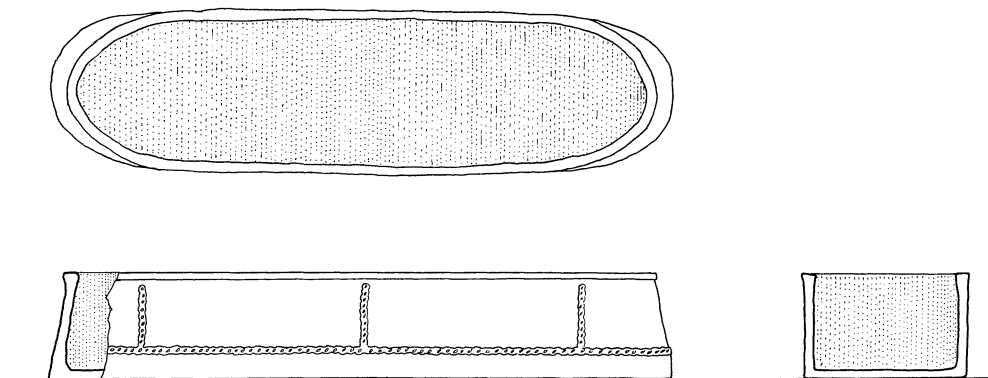


Fig. 10c. Parthian Grave Area, Coffin (4).

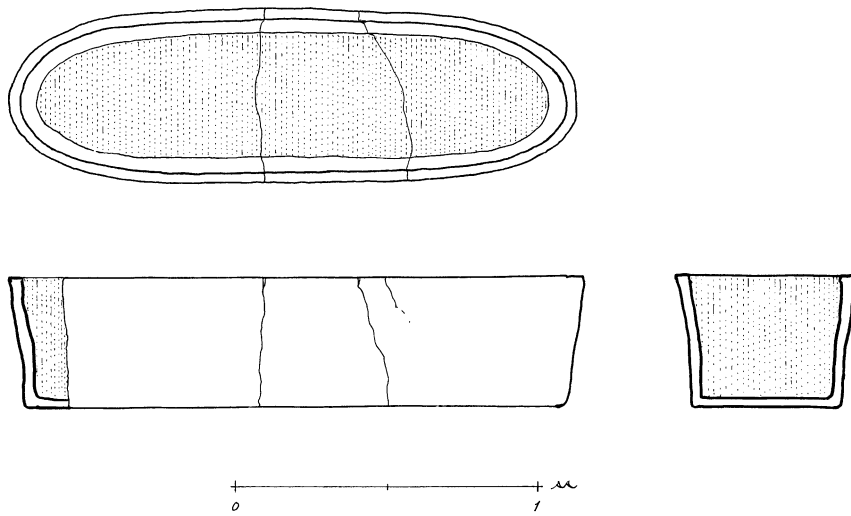


Fig. 11. Assur 1990 - Assyrian Grave, Coffin.



Plate I.



Plate II.



Plate III.

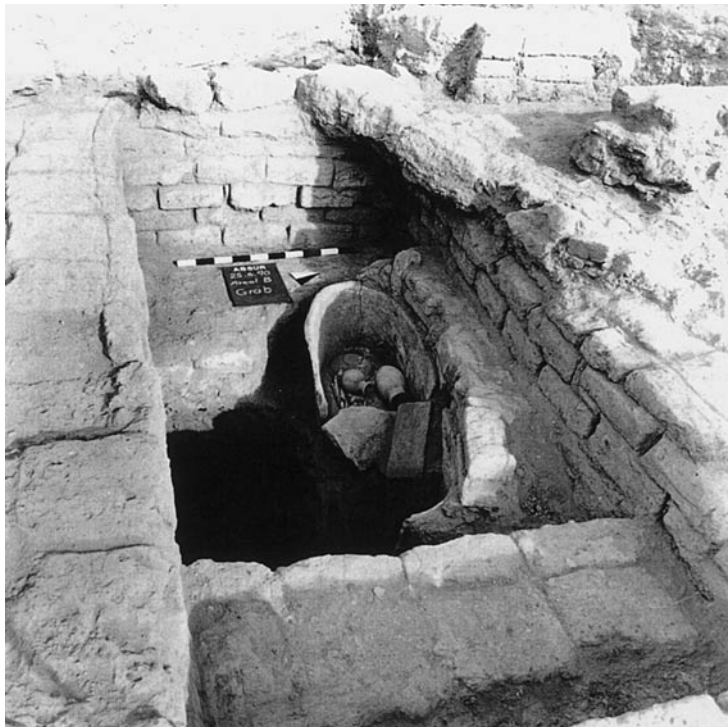


Plate IV.